# Gleanings in Bee Culture

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**June, 1955**

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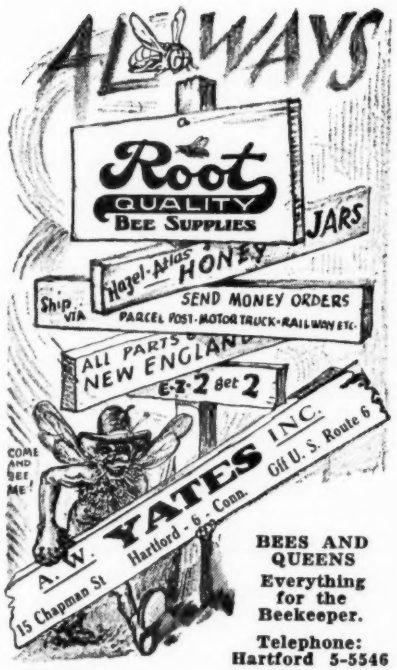


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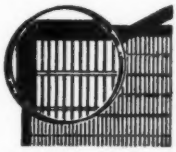

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## Canadian Market

(Unless otherwise specified, all quotations are for cases of No. 1 white.)

**HALIFAX:** Mkt. firm.
N.S., paper,
24/1's .....$ 6.30
N.B., paper,
24/1's ..... 6.75
metal,
24/2's ..... 12.50
Ont., past., paper,
48/1's ..... 13.50
metal,
24/2's ..... 12.50
liquid glass
24/1's ..... 7.00

**SAINT JOHN:** Mkt. steady.
Ont., past., glass,
24/16-oz. ....$ 7.80
paper,
24/1's ..... 6.90
24/2's ..... 12.90
metal,
12/4's ..... 13.70

**MONTREAL:** Mkt. firm
Que. White, metal,
24/2's ..... 12.00-12.50
12/4's ..... 11.50-12.00
glass,
24/8-oz. ..... 4.75- 5.00
24/16-oz. .... 6.75- 7.50
Dark metal,
24/2's ..... 7.25- 8.00

**OTTAWA:** Mkt. steady.
Ont., past., paper,
24/1's .....$ 6.55- 6.58
metal,
24/2's ..... 12.80-13.25
12/4's ..... 12.25-12.50
Golden, metal,
12/4's ..... 9.60
Amber, metal,
12/4's ..... 9.75
Man. White, metal,
12/4's ..... 12.25
24/2's ..... 12.50

**TORONTO:** Mkt. steady.
Ont., past., paper,
24/2's ..... 11.10-11.50
24/1's ..... 6.00- 6.50
glass,
24/16-oz. .... 6.75- 7.00
Dark, metal,
24/2's ..... 8.50- 8.75

**WINNIPEG:** Mkt. steady.
Man., past., metal
Golden,
24/2's ..... 11.25
12/4's ..... 11.00
past., paper,
48/1's ..... 12.40
24/2's ..... 11.95
12/4's ..... 12.10

**REGINA:** Mkt. steady.
Sask., metal,
12/4's .....$11.55
past., paper,
48/1's ..... 12.75-13.10
24/2's ..... 12.75-12.80
metal,
24/2's ..... 13.80-14.00
Alta., past., metal,
12/4's ..... 12.95

**SASKATOON:** Mkt. steady.
Sask., metal,
24/2's .....$10.65-11.25
12 4's ..... 10.25-10.60
past., paper,
48/1's ..... 12.60-12.80
Man., Sask., metal,
24/2's ..... 12.30-12.50

**EDMONTON:** Mkt. steady.
Man., past., metal,
12/4's .....$10.80-10.95
Alta., metal,
24/2's ..... 9.20-10.50
past., paper,
48/1's ..... 12.20-13.35
B.C. liquid glass,
12/1's ..... 4.60

**CALGARY:** Mkt. firm .
Alta., metal,
12/4's .....$10.75-11.25
6/8's ..... 11.00
past., paper,
48/1's ..... 12.25-12.95
24/2's ..... 12.50
metal, ,
12/4's ..... 12.75

**VANCOUVER:** Mkt. steady.
Alta., past., metal,
24/2's .....$12.95
12/4's ..... 12.60
carton,
48/1's ..... 13.00
24/2's ..... 12.60
B. C. unpast., carton,
24/1's ..... 6.95

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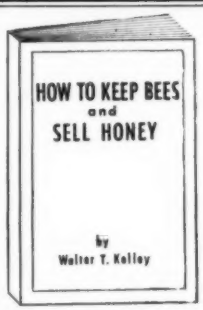


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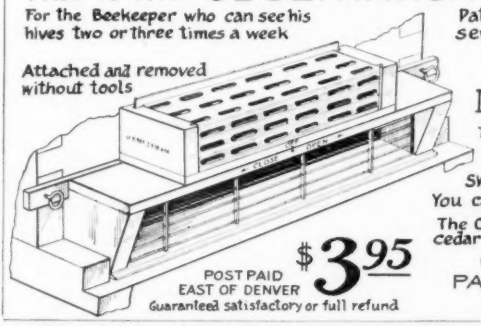

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| 1 - 24 | $ .75 | $3.00 | $3.75 | $4.50 | $5.25 |
| 25- 99 | .70 | 2.85 | 3.55 | 4.25 | 4.95 |
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| 1-24 ..... | $1.00 | $2.75 | $3.75 | $4.75 | $5.75 |
| 25-99 ..... | .90 | 2.65 | 3.65 | 4.65 | 5.65 |
| 100-up .... | .85 | 2.55 | 3.55 | 4.55 | 5.55 |

**(For Queenless or Booster Packages deduct price of queen)**

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Miel Carlota apiary on the highway from Cuernavaca to Taxco.

# Meet the champions: Miel Carlota!*

ROBERT B. WILLSON, New York City, N. Y.

**Part I**

THE WORLD'S greatest single beekeeping operation is in Mexico!

That statement will be challenged, and it will be withdrawn if it is not correct, but before challenging, check it against these facts about the outfit we believe are world champions:

(1) 12,000 colonies of bees
(2) 210 apiairies
(3) a crop of over 2,500,00 pounds of honey this past season
(4) a five-story steel and concrete honey house, each floor with about 8000 square feet of floor space and a capacity to extract 22,000 pounds of honey per hour
(5) queen production at the rate of 20 to 25 thousand a year
(6) a shop to turn out 200 hive bodies a day complete with covers, bottom boards, frames and foundation
(7) easily the world's greatest royal jelly business
(8) compilation of an encyclopedia of beekeeping—415 pages or one-half of which is now complete

If there is a greater single beekeeping operation than Miel Carlota in the United States or elsewhere that can be proved, the stipend for this article will be cheerfully given to the disprover's favorite charity.

Less than 12 years ago, the keeping of bees was not much more than a vague idea that was soon turned into a great plan because the first year there was the unexpected big crop of 37 pounds of honey per colony. That's

* Miel means honey in both Spanish and French. Carlota was the Empress of Mexico in the middle of the 19th Century.



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not much by our standards, but the partners of Miel Carlota are from Germany where honey yields are tiny and to them it was sensational. That's the beginning of our story.

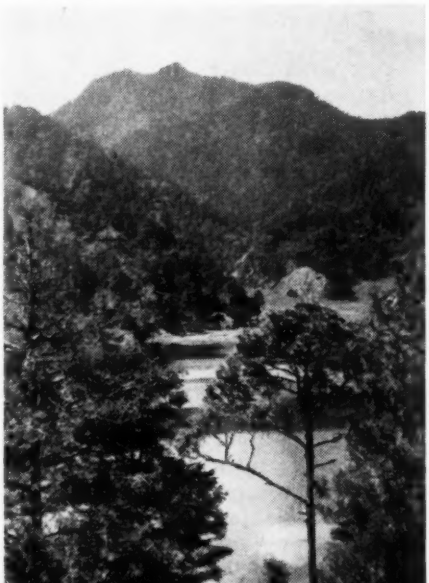
Arturo Wulfrath had been a combat officer in the German Army in World War I. Seeking new fields, he left his native land after the war and developed a flourishing import-export business in Mexico City. When World War II broke out, realizing that his business would be closed up sooner or later because he was not yet a citizen of Mexico, he retired to the quiet and beautiful city of Cuernavaca. Farm-raised in Germany, he first tried hog-raising, but the hogs died of disease. He then tried chicken-raising, but the chickens would always eat scorpions—and drop dead. Undismayed, he ventured into the nursery business, getting his stock for the most part from beautiful old haciendas that had been abandoned since the Revolution or before. With native gardners skilled in the lore of plant-raising, he was almost immediately successful and today has the biggest nursery business in Mexico, currently run by his son Juan.

The partners of Miel Carlota: Arturo Wulfrath, left; and Dr. Hans Speck.

### Partners Meet

ABOUT THE TIME the nursery was getting well underway, he was joined by a Dr. Hans Speck, a ship's doctor from the SS COLUMBUS, a German steamer whose owners decided it was discreet to leave it in Vera Cruz harbor just before we got into World War II. Like most Germans, both partners liked honey and talked of getting some bees. Besides, Mrs. Wulfrath had given Don Arturo a modern beehive for Christmas, so one Sunday afternoon they went after ten colonies they had arranged to buy. Uninitiated to beekeeping, they were badly stung, especially the doctor, and came home empty-handed. Dr. Speck had had all the beekeeping he wanted for life!

Mr. Wulfrath quietly persisted and after a couple of months persuaded the doctor that they should try again. This time, properly protected, the bees were brought home. That was in July, 1943, and it was during that fall and winter that the 37-pound crop was raised. The potentialities of honey production thus revealed to two such highly intelligent, enormously energetic men was all that was necessary except a brief decade to make Miel Carlota the miracle of modern beekeeping it is today.



Typical mountain scene about Cuernavaca.

To visit these kindly people in their beautiful homes amid surroundings like a fairyland summons to mind an alluring word—paradise. It was not like that at first, of course. The early

**Four of the five floors of the honey house are visible from this view.**

years were hard and results poor. They did not know bees and, like us all, made many costly mistakes in the beginning. They had no one to teach them and although reading everything they could get on bees, they were mostly learning by trial and error.

At the end of the fifth year, the original five colonies had been increased to 1000 and 22 outyards had been established. Careful selection had been going on for breeding and these 1000 colonies produced 180,000 pounds of honey. Six years later, going into the harvest of the fall months of 1954, the operation had been expanded to the sensational total of 12,000 colonies and a crop of over two and one-half million pounds was produced.

### No Bee Journal in Mexico

IN A LAND where there is no bee journal, and neither local nor national beekeeping associations, where there is some disease but no inspection nor anyone to instruct in the subject, it is a great accomplishment to have done what these men did with no one to guide them. However, nature helped as the climate is salubrious for there is no winter and although the honey flows come in October, November, and December, with lighter ones in January, February, and March, bees fly all year round and usually can make a living.

The country is mountainous but the main roads are good so there was lots of room for locations where no one else was pursuing commercial honey production. They soon learned how to make increase, they mastered the niceties of supering, how to haul honey and honey house technique, but the greatest of all accomplishments was with their help. There was no one to hire who knew beekeeping and so as they learned about it they endeavored to teach the native Mexican, who by blood is mostly Indian, the art and practice of beekeeping. It was not so much a language difficulty, as both partners had mastered Spanish, but understanding the nature of these people and how to work with them was the big problem.

In the early years, many workers were tried and many were let go. They did not take well to being given orders, at least by foreigners. Only a system of paternalistic direction rather than one of stern command was found to work but this approach paid off as generally the Mexican native about Cuernavaca



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was found to be a keen observer, quick to learn, and of retentive memory. Later as crops grew big and income began to increase, Miel Carlota put bonus arrangements into effect and the personnel became stable; it became an honor to be working with such a fine organization. They had taken a leaf out of the book of American business —sharing the profits right down to the lowliest worker.

Today there are about 100 employees. The apiary management is under the direction of Dr. Speck. He has six crews each of eight men who are permanent employees. About 20 more are hired during the harvest time. Each crew has its own truck. Six workers, some of them girls, rear queens and gather royal jelly. Other girls do the grafting.

There are 15 carpenters turning out hive bodies, frames, covers, and bottom boards. Girls make foundation and package honey in glass. Other girls do the retail selling on the premises. They seem to be one big happy family, working methodically, but without pressure. A noticeable spirit of cheerfulness prevails.

Part Two of this article will deal with apiary management, honey house operations, the marketing of the crop, and activities with royal jelly.

(to be concluded)

Native Mexican Worker

## An Easy Way to Prevent Swarming

JULIUS LYSNE, Stockholm, Wisconsin

WE HAVE worked out a plan that prevents swarming without any loss in egg laying to the queen—it is really forced supersedure.

About the beginning of the main honey flow, colonies in two-story hives are separated by placing the inner cover under the top hive body. The bee escape hole should be covered with wire cloth. Do not look for the queen at this time, but be sure each body has some larvae under 24 hours old. After four days, the queenless body will have supersedure queen cells and this body is set on the bottom and one super added.

Next add the inner cover and on top place the body with the queen. Provide an entrance for the top body. After three days the supersedure cells found during the last manipulation will be sealed. Destroy all but one queen cell, add extra supers if needed, and replace inner cover and body with queen on top.

After two weeks a young queen should be found laying in the lower hive body. The old queen may now be destroyed if there is no need for her. However, she may be kept in the top body all summer if desired.

The entrance to the top body should be changed every two weeks from front to the back and then back to the front again. Thus this body is deprived of its flying bees and will never swarm.

[We would suppose that during a good honey flow the hive on top would become rather crowded with brood. Why not place a piece of queen excluding zinc over the hole in the inner cover, so that the bees in both hives could intermingle. The brood chamber above would then be producing bees for the two-queen colony. It would seem necessary to confine the young queen in the bottom brood chamber, below an excluder, in order that the two queens would be separated by one or more supers. The old queen above could be disposed of at the close of the season if she had outlived her usefulness.—Editor.]

# Honey in low calorie frozen dessert

P. H. TRACY, Dept. of Food Technology
University of Illinois, Urbana, Illinois

THERE IS considerable demand among consumers of ice cream for a frozen dessert low in total calories, fat, and carbohydrate content. To meet such demands requires considerable maneuvering on the part of the ice cream manufacturer, for traditionally he is accustomed to using generous amounts of both fat and sugar in his formulations. It is extremely difficult to make a palatable product with a mix containing less than 36 per cent total solids, yet if calories are to be appreciably reduced the fat solids must be lowered to at least six per cent. Since the nonfat milk solids contain 54 per cent carbohydrate (lactose sugar) these solids must be kept below the usual minimum of 10 per cent. As carbohydrate intake must be limited by the diabetic, sugar must be kept at as low a level as possible. This necessitates using a synthetic sweetener to supply a portion of the sweetness desired.

In order to obtain proper action in a freezer, the mix must contain sufficient solute to lower the freezing point at least 28 degrees F. The lactose, salts, and added sugar of regular ice cream takes care of this very nicely. Without added sugar, a mix would have a freezing point of about 31 degrees F. and would form a frozen layer on the inside of the freezer barrel shortly after the freezer was started. This layer of frozen mix would serve as insulation and would reduce the rate of heat transfer from the mix to refrigerant to such an extent that the mix could not be properly frozen and whipped. It is necessary therefore to use enough sugar to lower the mix freezing point to about 28 degrees F.

The type of sugar used assumes a considerable degree of importance under such circumstances. Since a monosaccharide (dextrose or levulose) depresses the freezing point of a solution to a greater extent than does an equal weight of a disaccaride (sucrose), it is desirable to use the former type of sugar, when only limited amounts can be included in the formula.

## Honey Has Desirable Features

Since honey is a mixture of dextrose and levulose it is an ideal sweetening agent to use in low-sugar mix formulas. Honey has the further advantage of having a flavor characteristic of its type which makes the addition of other flavor less necessary. As some honeys (Table 1) contain a higher proportion of levulose than dextrose, their use would be particularly desirable, as levulose is not only sweeter than sucrose or dextrose but has been reported to have a delayed change into glycogen in the liver and subsequent appearance in the blood stream. This delay reduces the insulin load in the period immediately following ingestion, a matter of importance to the diabetic.

A similar characteristic has been attributed to sorbitol, a product made from glucose, which has found extensive use as a substitute for sugar in the diabetic diet and is at present used extensively in the preparation of frozen desserts for diabetics. Since the favorable advantage of honey in diabetic foods is somewhat controversial it would be well for some interested group to sponsor research to establish conclusive evidence of the delayed appearance of levulose in the blood stream of the experimental subject.

## Frozen Dessert Formula

THE FOLLOWING formula will produce a mix containing six per cent fat, seven per cent milk solids-no-fat, four per cent special protein, eight per cent honey, 0.5 per cent stabilizer and emulsifier, and 0.16 per cent calcium sucaryl. The total solids will be approximately 23 per cent and the calories per 100 grams of mix will approximate 120, which is about 55 per cent of the caloric value of commercial ice cream containing 12 per cent fat. The carbohydrate value per 100 grams of mix will be equal to approximately 44 calories, whereas that of 100 grams of commercial ice cream will vary from 80 to 85.



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**Formula for low calorie low carbohydrate frozen dessert**

30 lb. 20% cream
56 lb. skim milk
4 lb. hydrolyzed protein (a)
8 lb. honey (Tupelo)
0.5 lb. commercial ice cream stabilizer and emulsifier
1.5 lb. water
2.5 oz. calcium sucaryl (b)

100 lb. (11 gal.)

(a) Manufactured by Wilson & Company, Union Stock Yards, Chicago.
(b) Manufactured by Abbott Laboratories, North Chicago, Illinois.

Saccharin which is about 400 times as sweet as cane sugar may be used in place of part or all of the sucaryl where its use is permitted by law.

In making a product of this type, the ice-cream manufacturer should keep these points in mind:

1. Approval for sale should be obtained from the proper state officials.
2. The product cannot be labeled "ice cream."
3. The caloric and carbohydrate value per 100 grams of the finished product should be printed on the carton.
4. The presence of the artificial sweetener should be declared on the package.
5. Only flavoring materials with low carbohydrate content should be used, such as vanilla, imitation maple, orange, or lemon extract.
6. The overrun should be limited to 70 per cent.

It should not be expected that the product made according to the above formula will be comparable in quality to regular ice cream. However, to those on limited diets its inclusion in the menu may prove to be of considerable enjoyment and a boost to their morale. This makes for good public relations for the ice cream industry.

**Table 1. Relative dextrose and levulose content of honey**

| Type of honey | % dextrose | % levulose |
|---|---|---|
| Mountain honey [1] | 31.95 | 42.0 |
| Cedar [1] | 25.3 | 39.5 |
| Creeping sage [1] | 28.0 | 43.7 |
| Mountain Misery [1] | 28.02 | 41.1 |
| Apple [1] | 29.9 | 41.0 |
| Alfalfa [1] | 35.8 | 39.9 |
| Sweet clover and alfalfa [1] | 39.05 | 40.3 |
| Orange [1] | 38.10 | 41.9 |
| Sumac [1] | 33.4 | 41.1 |
| Average of 92 U. S. honeys [2] | 34.02 | 40.5 |

[1] Eckert, J. E. and Allinger, W. H. Bulletin 631, Univ. of Calif. Physical Properties of California Honeys, page 10, 1939.
[2] The Hive and the Honeybee, page 481, Edited by Roy A. Grout. Published by Dadant & Sons, Hamilton, Ill., 1946.

## Prevention of Robbing

LEONARD HASEMAN, University of Missouri, Columbia, Mo.

NOTHING IS MORE annoying in the apiary than a bad case of robbing. Bees by nature turn instinctively to robbing when nectar is not available. When a strong colony suddenly finds its field work closed out by a drought the workers do not seem to know how to expend their energy, so begin "snooping," and, on finding one not fully guarded, they start robbing it.

If one attempts to take honey or to handle bees when there is no nectar flow, he is sure to start them robbing. The bees' mania for hoarding causes them to try and get honey wherever they find it and, as a consequence, the colony which is not able to guard its stores is sure to be relieved of them.

**To prevent robbing, avoid handling bees during a drought.** If you must go into a colony at such times, do so just before dark and then carefully close up the hive as soon as possible. In handling bees or taking honey at any time avoid smearing honey around. Do not get in the habit of dropping bits of honey comb at the entrance of the hive or laying it out in the apiary for the bees to clean up. You will regret it later when you set up robbing. Learn to be just as neat and skilled in the handling of bees as surgeons or cabinet makers are with their work.

In case robbing occurs, restrict the entrance of the hive being robbed by inserting a strip of screen wire into it and place a little brush in front of the hive. By reducing the size of entrance to be guarded the weaker colony may be able to protect its stores. In a serious case of robbing the entrance may be closed completely with a strip of screen wire, or the hive may be removed to a more protected place. In case the hive is taken away, put an empty one in its place. Also restrict the entrances of neighboring hives.

# Swarm prevention and recovering swarms

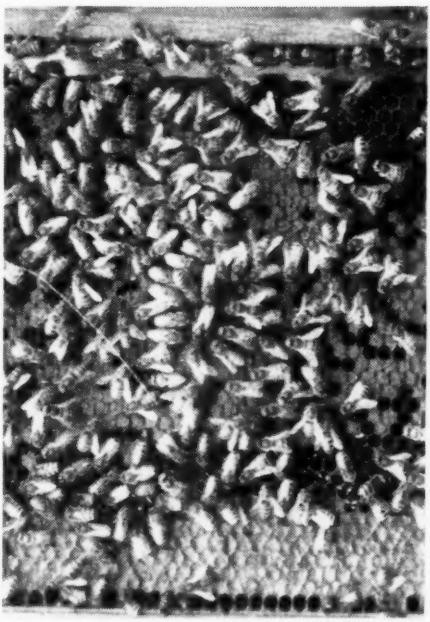
HOWARD A. PIKE, Apiary Inspector,
Rhode Island Department of Agriculture

SOME BEEKEEPERS may have difficulty in trying to prevent a colony which has built up quickly to full strength, from dividing its forces by swarming, thus spoiling the chance of getting a maximum crop of surplus honey. Keeping the bees together at the beginning and during the period of gathering the crop is a job to try the patience of all beekeepers. Several things can be done to prevent swarming but sometimes they all fail. Honey production is quite dependent on the ability of the beekeeper to reduce the swarming impulse or overcome it entirely, as a division of the colony at this time will mean the probable loss of a crop and also the loss of the swarm.

Swarms are more common in the spring than at any other time of the season. Some colonies show no tendency to swarm at all and if all the the other desired traits are present, queens should be raised from this colony and introduced to the others to help eliminate the impulse to swarm. Manipulations made to prevent swarming are not of much use unless made well in advance of the desire to swarm.

**The following manipulations help to prevent swarming:** Requeening with new stock which is known to be non-swarming; prevention of crowded brood chambers in comb honey production by giving an extra hive body early; the use of bait sections (comb honey production) or extracting combs in supers to entice the bees quickly out of the brood chamber; the use of all worker comb in the brood chamber; ventilation by staggering supers; and use of shade boards in very hot weather.

**Removal of combs from the brood chamber** and replacing them with empty combs or full sheets of foundation will relieve the congestion. Cutting out queen cells every eight days, or soon after they are started, being careful not to miss any, will sometimes halt swarming, but if queen cells are left until they are sealed, removal will not be as effective as it would have been had they been cut out in the earlier stage. These manipulations are effective in most cases when carried out early enough but in some seasons when nectar is especially abundant, nothing seems to stop some colonies from swarming.



Requeening every year is a good way to control swarming.

When a colony has made all preparations and is about to swarm anyway, we can take a hand in it and keep them from going away by swarming them artificially. To do this we remove the hive from its stand and place another hive on the same stand; this new hive should have full sheets of foundation in the frames. Open the hive containing the bees, keeping a sharp lookout for the queen, and shake the bees off the combs in front of the entrance to the new hive. It is a good idea to place the comb containing the queen in the new hive as the brood in this comb will keep the bees from absconding. Or you can place a queen excluder underneath the hive body, between it

and the bottom board for a week or so, in order to confine the queen. The brood in the combs, which have just been shaken, can be placed on top of another colony that needs it or the combs can be divided among several weaker colonies. We now have swarmed them at our convenience, and are sure they will not fly away.

ABOUT THE time of fruit bloom, the wings of the queen can be clipped so that if a swarm comes out later from the colony they will not go away. The bees will soon return to the hive after finding out the queen is not with them. The queen may go out with the swarm but as she cannot fly, she will probably be found in the grass in front of the entrance with a small bunch of bees about her. While the swarm is milling about or clustering on some object, the beekeeper can set the hive to one side and put a new one in its place, having full sheets of foundation in the frames. The bees will soon start to come back and when about one half of them have gone in the entrance, the clipped queen can be run in with them or caged and set inside the entrance.

The hive with the brood can be set on another stand, for increase in number of colonies, or the bees which are left in it can be shaken in front of the new hive and the brood given to some other colony which may need it. The hive containing the brood and what bees are left after the swarm issued, if kept for increase, can be requeened by leaving the best queen cell to hatch; or all queen cells may be cut out and a young laying queen given them.

If all our efforts to prevent a swarm from issuing forth have proved fruitless and the swarm comes out, we can catch them provided they are not in the top of a very tall tree on limbs too slender to bear our weight. In this event they can be dislodged by a shot from a shotgun, using bird shot. They will probably cluster in a new place nearer the ground so that we can gather them up and put them in a new hive prepared in advance to receive them. We will confine ourselves to but a few methods of hiving swarms, but much could be written on the subject.

### Recovering Swarms

Swarms of bees will sometimes cluster in the most peculiar places and will test the skill of the beekeeper to dislodge them so that they can be caught and hived. Swarms may be found on trees, buildings, fence posts, stone walls, sometimes on the ground in the grass, in boxes, barrels, on wagon wheels, automobiles, and almost every conceivable place they can alight and cluster. It is always necessary to get the queen when hiving swarms or the bees will go back to where they were clustered and find her.

If a swarm has clustered on a branch of a tree or bush, it can be cut out and carried to the hive that was made ready for it in advance. The bees can be shaken into the hive or at its entrance, and they usually march in like soldiers on parade. The beekeeper gently blows a little smoke on either side of the bees to keep them headed in the right direction and keeps a strict watch to make sure the queen goes in with them.

If the tree or bush is too valuable to cut, the bees can be shaken off into a basket or box and taken to the hive and dumped before the entrance. Or, the hive, with covers removed and a few frames taken out, can be set under the swarm and the bees dislodged with a quick shake of the limb; they will then fall into the hive.

If the bees are too high from the ground, a ladder must be used to reach them and the job becomes more complicated. When they cluster on something solid like a post or building they must be brushed off into a box or basket or even a burlap bag, and care must always be taken that the queen is with them. Sometimes a comb with some brood in it can be placed close to the cluster and they will crawl or alight on it; when the queen and most of the bees have moved to the comb, it can be taken away to the hive. These are only a few methods whereby the swarm can be caught, but many other ways can be devised as the situation permits.

In the old days of box-hive beekeeping swarming was welcomed as a means of increasing and replenishing the number of colonies which were killed in the fall by sulphuring which was done in order to remove the honey. Now the successful beekeeper using

(Continued on page 380)

# Transferring bees

W. H. PURSER, Clemson, South Carolina

THE TERM "transferring bees" is more commonly connected with the practice of taking **bees** from the box gum and hiving them in standard movable equipment. This is the definition that suits for the time being. And I mean just that! BEES and NOT COMBS should be transferred to modern equipment. The practice of cutting out the combs and tying them into frames to me is not practical in any sense.

### When to Transfer

For some years we made a date with the box hive when apple trees were in full bloom. To get bees installed without too much feeding, it has been found for this section of the United States that apple blossom time is a little too early. **Now** we prefer to **transfer when blackberries are in full bloom.** The tulip poplar is in bloom at about this same time so the chances are that a good honey flow will be on.

Of course the transferring should be done before a swarm has issued. This would certainly complicate matters, as the old queen would be out and gone and perhaps a young queen had not emerged.

### How to Transfer from a Box Gum

Provide plenty of fuel for the smoker, a hammer, and a 10-frame standard hive with top and bottom containing one frame (at least) of brood and stores. Some eggs and young larvae are very desirable. If a frame of brood is not available then it may be necessary to borrow or buy a frame from a neighbor or cut out some brood from the box gum and tie in one frame. A queen should be on hand for each hive to be transferred. Some cardboard and two or three pounds of sugar will be needed.

Get the **smoker going full blast** and give the old hive three or four good puffs at all entrances. Set it to one side and **set the new hive in its place** with the entrance as near the same position as possible. Place the frame of brood and as many frames as the bees will cover in the new hive. (Add other frames as the bees need them. If the hive is in the shade all the foundation or empty combs may be put in it before the bees are driven).

Bees being transferred from a log gum to a modern hive.

Either at the top or bottom remove combs for about four to six inches. Then at the opposite end begin smoking vigorously and hammering the sides at the same time. This should be kept up until a good cluster of bees is covering the top. Lay the smoker down, **pick up the old hive** and **give it two or three good jars** right in front of the new hive. An old sheet or some pasteboard is good to use to jar the bees on if the ground is sandy or has litter on it.

As the bees enter the new hive **watch for the old queen.** If she is found catch and kill her and give the hive a new queen. Repeat the smoking, drumming, and jarring until most of the bees are out. **If more increase** is



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desired the old hive may be set aside with top on—at least 50 feet away—and given a new queen. In three weeks another good swarm can be driven from the old hive. The condition of the colony in the old hive will determine largely how many new colonies can be started this way in one season.

If a queen is not given to the old hive, the bees left in it will raise one but she should be left in the old hive for 30 days before making another transfer. This will give her time to get mated and to start laying before going into her new home.

**Removing Bees from a House or Tree**

THIS IS generally a little more complicated and requires more time and assistance. If bees are in a stone house or in any place where it is undesirable to remove the ceiling or outside wall then the bees may be trapped out with a screen funnel. Simply put a small colony of bees near the entrance and stop up all other possible entrances. Make a screen funnel large enough to cover the hole and extend it out for five or six inches. The bees will enter the hive when they fail to get back into the wall. Bees may be taken from a tree the same way. A bee escape may be used instead of the screen funnel.

Bees may be removed from the walls by taking off boards either inside or out. Some boards above and below the bees should be removed first. Use as little smoke as possible to prevent running the queen off into another part of the wall. Remove the combs by using a sharp knife and cutting off in tiers from the bottom first. When bees begin to cluster dip them off with a dipper and pour them into the hive prepared as in transferring from the gum.

Bees may be removed from a tree by cutting it down and with a cross-cut saw cut out blocks about 15 or 18 inches long until the bees and combs are uncovered. When the bees cluster dip into the hive prepared as before mentioned. Some of the better combs of brood may be tied into old frames and discarded later.

It is a good idea to feed the new colony two or three pounds of sugar. This may be fed as syrup (water and sugar) or fed dry. If dry sugar is fed it should be poured right down on the bottom board.

**Martin Reibe of Sulingen, Germany is preparing his colonies for moving in the heather honey area.—An Elbe photo.**

# Control of European foulbrood with terramycin

P. W. BURKE. Apiculture Department
Ontario Agricultural College, Guelph, Ontario

MOST BEEKEEPERS are familiar to some extent with European foulbrood. It is not generally considered to be a serious disease but it may act in a very insidious manner. European foulbrood (E.F.B.) usually appears in a very mild infection and disappears by the beginning of the main honey flow. However, beekeepers in a few localities within Ontario sometimes encounter serious losses due to E.F.B.

During very recent years, terramycin has been demonstrated to have value in the control of E.F.B. Late in the winter of 1953-54, plans were made by the Apiculture Department, Ontario Agricultural College, to undertake a large scale apiary test using poultry formula terramycin. Fortunately, arrangements were made for use of a suitable number of colonies in an area known to have a long record of serious E.F.B. trouble.

Twelve apiaries, each started with about 50 two-pound package colonies belonging to Mr. Carol Clark, Emo, Ontario, were used for the co-operative project. That is, 607 package colonies were established. All were used for this experiment except, of course, the few lost due to installation difficulties. These apiaries were located in the Rainy River District in the vicinity of Emo and Rainy River, north of the Ontario-Minnesota border.

## Procedure

The two-pound packages of bees were trucked from the South in two loads and installed on combs between April 22 and May 12, 1954. Terramycin poultry formula with 25 grams of terramycin activity per pound was supplied to Mr. Clark in weighed quantities for a known amount of syrup. The feed was prepared at the rate of one-half gram of terramycin per gallon of 1:1 sugar syrup. As each pound of terramycin poultry formula contained 25 grams of terramycin activity, then one pound treated 50 gallons of feed, or enough for 50 colonies at one gallon per colony.

As had been the custom in Mr. Clark's apiaries, the package bees were installed on brood combs containing some honey which had been carried over from the previous year. The treated syrup was prepared at the rate of one gallon per colony and poured into empty combs. This feed was divided into three equal portions and given to the colonies at three separate times—on installation, approximately two weeks later, and the final one-third was fed during the first week of June. At the second feeding many colonies were very low in feed.

Each of the 12 apiaries consisted of 80 per cent terramycin-treated colonies and 20 per cent untreated. That is, each apiary consisted of approximately 40 terramycin-treated colonies and 10 untreated or "control" colonies. The untreated colonies were managed in the same way as the treated colonies except for the omission of the terramycin at each feeding and were scattered at random amongst the rows of treated colonies. The treated colonies also had fumidil-B added to their feed at about one-third gram per gallon as precaution against Nosema disease.

## Observations

The writer examined these apiaries between June 14 and 19. At that time, less than one per cent of the **treated** colonies showed any trace of visible E.F.B. infection. The infected colonies in the treated group showed from about 10 to over 100 larvae infected. Most of this loss was concentrated in one apiary.

Sixty per cent of the untreated colonies were infected. Some of these **untreated** colonies had just a few dead or sick larvae and a few of them had more than healthy larvae. A number of the untreated colonies died out during the summer.

There was no indication of Nosema

disease in any of the treated colonies that received terramycin plus fumidil-B. The untreated colonies did not show any serious appearance of Nosema.

### Results

Both the treated and untreated colonies were maintained separately throughout the season to determine the average colony production in each. After the crop was removed the bees were gassed. Honey in the brood chambers was kept over for the 1955 season. The terramycin-treated colonies (those remaining at end of crop season) produced an average of 162 pounds of honey each. In comparison, the untreated (control) colonies produced only 63 pounds of honey each.

### Conclusions

As can be seen from the above results, excellent returns were obtained from using terramycin poultry formula 25 against European foulbrood. The cost per colony for terramycin poultry formula 25 was approximately 20 cents. This, of course, does not include cost of labor, fumidil B, or sugar used.

No definite conclusions were drawn from this project on the value of fumidil B on colony health and development. However, there are indications that the difference in colony losses in the treated and untreated groups of colonies may be due to fumidil B. More work is yet to be done regarding the use and effect of fumidil B on honey production.

**TABLE 1—Comparison of Untreated Colonies and Those Treated with TPF 25**

| | No. Pkg. Colo-Established Apr. 22 to May 12 | No. Colonies Lost Due to Installation Supersedure & E.F.B. | % Colonies Showing E.F.B. Infected Larvae June 14-19 | Ave. Crop Produced by Surviving Colonies |
|---|---|---|---|---|
| Treated Colonies | 463 | 34 (7.3%) | Less than 1% | 162 lbs. |
| Untreated Colonies | 144 | 48 (33.3%) | 60% | 63 lbs. |

In order to determine the possible effect of terramycin on infected colonies by late season feeding, eight colonies were selected for the purpose. The colonies used were the "controls" or untreated colonies in one apiary. They were very seriously infected on June 19th. These colonies had bees covering about eight frames each.

On June 24th four of these colonies were fed sugar syrup with the terramycin added as mentioned for the original project. The other four colonies were fed the sugar syrup only.

The four treated colonies produced an average of 75 pounds (Table 2) of honey each whereas the four untreated colonies in this second experiment produced only 30 pounds each.

**TABLE 2—Comparison of Production Between Untreated Colonies and Others Treated with TPF 25 June 24 only**

| | No. of Colonies | Ave. Crop Produced |
|---|---|---|
| Treated Colonies | 4 | 75 lbs. |
| Untreated Colonies | 4 | 30 lbs. |

During this past winter others have written of spraying and dusting colonies with terramycin. Various preparations of terramycin such as TM 5 and TM 10 have also been used. It is worthwhile to treat colonies by feeding, dusting or spraying with one form or another of terramycin to prevent or control European foulbrood losses. Those beekeepers in areas troubled with serious losses due to E.F.B. are advised to consult their Provincial or State Apiarist.

## A Difficult Assignment

THE government official in charge of agriculture had instructed the old farmer to collect his stock of every description and have them branded.

"I suppose that's all right," sighed the farmer, "but honest, mister, I'm going to have a helluva time with them bees."

# Beekeeping in New Jersey

PAUL HOLCOMBE, New Jersey Apiary Inspector

THE PRIMARY section for honey in New Jersey is the northwestern portion of the state. It includes Sussex, Warren, Hunterdon, Mercer, a portion of Passaic, Morris and Somerset Counties. The terrain is composed of hills, valleys, small streams, and a few lakes. Diversified agriculture is followed, namely: dairy farming, poultry, apple and peach orchards. Many wild flowers abound in the wooded areas and uncultivated waste land.

Years ago when the sowing of alsike clover was a general practice followed by a large planting of buckwheat, this area was very productive. Today the soybean has replaced the buckwheat acreage. Later, alsike clover was sown less. Alfalfa became adapted to the soil and provided the dairy farmer a larger tonnage of excellent hay per acre.

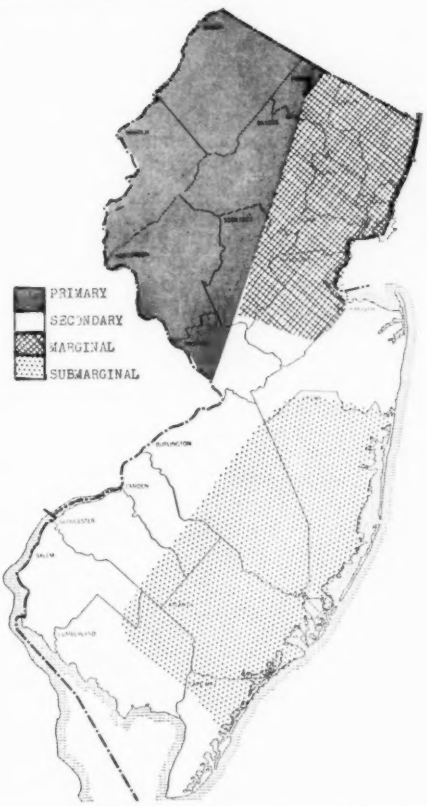
Today the bees must forage further in search of food. The honey crop is largely gathered from wild flowers.

The bloom of the various plants will appear several days earlier up the sides of the southern slopes and later in the valleys and on the northern sides of the hills, thus making the flow of a longer duration. The honey is generally of an amber color, enjoyed by people who love a honey with a pronounced flavor.

Bees that are acclimated to this area gather and store large quantities of pollen from the field corn in the later summer and fall, storing it in the combs for future use. A colony having a good supply of pollen stored away for early spring brood rearing, most generally, will gather surplus honey during the season.

The **secondary area** is a fertile farm land. The main crops are tomatoes, asparagus, lima beans, peaches, and apples. It has been found that some varieties of lima beans secrete more nectar than others.

In the pastures of a few dairy farms, native white clover is found. This clover spreads itself by seed and laterals which spread out from the parent plant, eventually taking root and forming new plants in all directions. This




plant is shallow rooted and requires plenty of moisture.

Colonies that are used for pollination of blueberries and cranberries in the submarginal area are moved from the fields after pollination is completed in area two, along the Delaware River. With proper management the colonies can be rebuilt for next season's pollination work. The main honey flow is Spanish needle, one of the **Bidens,** and purple loose strife and wild aster and goldenrod, which are found further inland.

The **marginal or the northeastern area,** furnished a lot of nectar and pollen plants at one time. Today large housing projects have taken over most all of the available ground. The beekeeper has had to give up his hobby

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# The queen excluder

LESLIE H. LITTLE, Tennessee State Apiarist

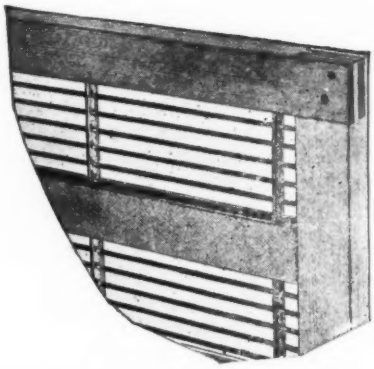
SINCE I STARTED keeping bees some 30 years ago the queen excluder has been one piece of equipment that has been abused, misused, and perhaps talked about more than any other part of bee equipment. During this time I have found that the excluder is something about which no one can give us much advice regarding its use.

Many articles have appeared in leading bee journals but no two writers can agree on its proper use. Some will praise and some will condemn it. No doubt this has contributed to the attitude of some amateur beekeepers toward the queen excluder. Some feel that it is just another piece of equipment to store in the back room, made to sell but not to use.

At almost every bee meeting I have attended, the excluder is one of the leading topics. Some of the questions include the following: Do you use the excluder? Are they necessary in honey production? When do you put them on the bees? Will bees store as much honey in the supers when they are used? Will excluders cause swarming? Will they prevent swarming if used on the bottom board? One can only give his personal opinion which may or may not be accepted. We should be very careful in answering questions from beginners. They ask for information and should be given intelligent answers.

In this area most every use of the excluder is practiced. Beekeepers are known the world over to be individualists. We have our own way of doing things and of course they are the best. The beginner is trying to learn and any information we may give him will determine whether or not he will make a success of his new project.

Only about one per cent of beekeepers in this area buy queen excluders when purchasing their first bee hive. Some who have had bees for many years do not own a queen excluder, perhaps because they have heard someone say that they were honey excluders and no good. Some buy them but never find a time and place to use them. Some commercial honey producers say excluders are essential in any type of honey production while others say they are unnecessary. I believe that with proper knowledge of bee behavior honey can be produced without them but I also feel that much time can be saved and production increased by their use.



Corner of a wood frame excluder.

The use of the excluder will vary somewhat in different locations, also with individual colonies. Each colony is a separate unit and must be managed as such. Some colonies seem to work through the excluder and store as much honey in the supers as the colony which did not have an excluder on it. This of course is not true in every case.

I am often asked the question, "Why did my bees swarm with one or two supers of foundation on them? Was it because I had the excluder under the supers"? The only reply I can give is to ask these questions: Would they have swarmed had you not used the excluder? Was the colony preparing to swarm before the supers were given to them? Invariably the answer will be, "I don't know, I didn't examine them". I do not believe that excluders will cause excessive swarming if proper attention is given the colony beforehand. If a colony has made preparations to swarm no amount of supers given will prevent it; something must be done other than give supers.

Swarming is one of the main problems of the beginner and in many cases the excluder gets the blame when it is only negligence or lack of knowledge on the part of the beekeeper.

**Queen Excluder Essential in Tennessee**

IN TENNESSEE more than 75 per cent of all honey produced is chunk or cut comb and certainly in this type of production the excluder is essential in controlling the queen, otherwise she will enter the supers. Too many beekeepers try to produce all chunk comb honey which of course is a mistake as we have to have liquid honey to properly pack chunk comb honey. The combs from which extracted honey is obtained are certainly a great help in swarm control. When used just above the excluder little difficulty is encountered in getting the bees to come up through the excluder to work in the supers.

No two colonies are the same any more than any two people are alike, therefore we cannot expect them to respond to the same treatment. They are separate units and must be treated as such. The only way to determine when to do certain things to certain colonies is by careful study of the colonies. Experience alone will give you this knowledge.

I think that once the beekeeper learns how to use the excluder he will find it one of the most valuable pieces of equipment he owns. He will also learn to appreciate and care for it. I do not think that efficient honey production depends upon the use of the excluder but it certainly has it's place when used in the right place at the right time.

**Some Uses of the Excluder**

One commercial honey producer in Tennessee says that by using the excluder on the bottom board it will prevent swarming. I disagree with him but he says it works. I do not see how it could prevent swarming. It would only prevent the queen from leaving with the swarm and of course, cause the bees to return. My question is, what happens to the colony? Will the bees return and be contented or will they continue to swarm daily? Will they keep the old queen or will they kill her? If they fail to keep the old queen and allow the virgin to emerge, then how will she take her mating flight? Can she go through the excluder? Many things could happen to the colony unless very close attention is given. The colony could become queenless or develop a drone layer. Either can be serious. I think this use of the excluder could be called "delayed swarming".

Another use no doubt is the one for which it was made and that is to confine the queen to certain sections of the hive at certain times. After the main brood rearing season the queen must be confined to the lower part of the hive otherwise we find brood in those supers which we intended to take off. If we prepared those supers with cut comb foundation and find the queen has taken over to raise young bees in those supers we then wish we had used the excluder.

In some areas a long slow honey flow creates a problem. When this is the case and no excluder is used and we find the queen has deposited eggs in those nice supers then we realize the importance of the excluder. If we do not prevent this the bees surely will not unless the flow is heavy and fast. In this case the bees will crowd her down but we seldom have these kind of flows in Tennessee.

**In package bees and queen rearing the excluder is indispensible.**

Without the excluder we could not operate our queen yards. I think this is true of most queen breeders of the South. Most breeders use the queen-right colonies for cell building and the excluder is a must. Without it commercial queen rearing would be impossible.

In package-bee production there are several methods and types of hives used. Some use single brood chambers while others use double brood chambers. In the latter the excluder is used to confine the queen to the lower brood chamber and packages are shaken from the upper chamber. This eliminates finding the queen before shaking. If the single brood chamber is the type used then the queen must be found each time before shaking, and this requires time. The method varies with the individual as well as location. In this area only the double brood chamber permits the colony space for food and the queen to expand the brood nest in early spring to build a strong colony by April first at which time most beekeepers want their packages.

(Continued on page 382)



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XUM

# Some whys and hows of two-queen management

JOHN W. HOLZBERLEIN, JR., Meeker, Colorado

**Colony at right has been cut back to single queen. The one behind me and at the left still have two queens. You will note two different sizes of supers. All of our new equipment is the six and one-fourth frame size to make for ease in handling.**

FOR SOME 14 years we have been using two-queen management with varying degrees of success. It is like any other method of beekeeping in that the answers are not all apparent at once, nor will any set of rules work all of the time. Some basic principals always apply, however, and the details can be worked out to suit one's local conditions.

There is no use for the beekeeper who does not like to "work with his bees" to attempt it. The extensive producer with widely scattered yards and time for only infrequent visits will not find the two-queen system suitable to **his** system. Nor will the migratory man who picks his crop in two or more locations. But the producer with limited territory and reasonably certain flows may well increase his production, cut down his losses from swarming, and yet operate no more colonies nor occupy any greater territory. The amount of extra work necessary is in very favorable ratio to the extra amount of honey secured, thus lowering the cost of production per pound of his crop.

My estimate would be that 50 per cent extra time spent in two-queen management will produce 100 per cent more honey. It is a difficult figure to set for seasons vary so much, but anyone with a beekeeping background will realize this. Perhaps only one year in five will give optimum results, one year of the five may be so poor that the extra queen and extra labor will be lost, but the average of 14 years would indicate that within certain limits we can expect about 100 per cent more marketable honey from two-queen colonies than from those operated with just one queen.

There will be those who will say that we might operate twice as many colonies and accomplish the same results. But it cannot be done with the same amount of labor and equipment and territory.

### High Degree of Efficiency

The two-queen system develops a

higher degree of efficiency, since the larger the population the more honey is stored per bee. It permits the operation of large colonies without the danger from swarming that results when single-queen colonies are permitted to attain large populations before the honey flow begins. And if the colonies are in some way prevented from reaching their maximum strength, their so-called "peak", before the flow begins we are then building up on the flow and not getting all out of it that we could with colonies that had already reached honey-gathering strength. Furthermore, with two-queen management we raise the level of this "peak".

Our best example of the advantages of this system occurred just a few years ago—in 1952. In the first ten days after the flow began some of our yards using two queens stored an average for the yard of 260 pounds per colony. Single-queen colonies stored scarcely a super in the same time. That flow lasted only 10 to 12 days, and never came back to any extent, but the colonies that were ready made a crop. Quite often honey flows from minor sources come and go and one can scarcely notice them from the results shown in weak colonies, while strong colonies on the same flow may store a surplus of economic value.

So much for the "Why". **Now something about the "How".**

In the first place only colonies that have had near ideal conditions during the winter and spring will be eligible for this type of management. It takes a real power-house in the first place to make a profitable two-queen colony. One should not try to operate all of his colonies in this way, to start with, anyhow. Rather, he should pick the better ones, and then make preparations to have all colonies better for the following year. When a beekeeper does plan to operate all possible colonies by this system preparations will need to be begun the season before.

**These preparations begin by trapping pollen,** for it is rare that a colony will store enough pollen to maintain full scale brood rearing until new pollen is abundantly available from the field. Without this supply of pollen it is impossible to develop populations and brood enough at the time the two-queen divisions should be made. But by using one part of trapped pollen to three parts of soy flour a suitable pollen substitute can be made that will maintain brood rearing at a level that will make divisions possible in most of the colonies.

In our locality it takes two or three one and one-half or two pound cakes of pollen and soy flour to bridge the gap between the exhaustion of stored pollen and new pollen from the field.

Together with the pollen fill-in there must be a prolific queen the fall before and a fall reserve of from 75 to 90 pounds of honey. These are the three major requisites to insure two-queen material the following spring. And if colonies are so made up they should have the equivalent of 10 or 12 frames of brood as well as a large supporting population of bees by the latter part of April. This is about the time the two-queen units should be set up for they should have eight weeks to attain their full strength before the major honey flow begins.

THE BEST queens that can be secured should be ordered well in advance of this time so that they can be introduced at the time the colonies are set up. The lower unit should be made up with the young brood and less than half of the bees for the field bees will return to the lower unit. Any upper flight hole used for winter should be plugged three weeks before making the divides to get the field bees to using the lower entrance. The overwintered queen is left in the lower story. She is held there by a queen excluder and two supers of combs given.

The upper unit should be given the mature and emerging brood and more than half the bees for the reason set forth in the above paragraph, and more than half the honey for the same reason. This unit is given a flight hole and set on top of the colony on a board that may be either solid or screened, but must be bee tight. In this unit the young queen is introduced.

In 10 to 14 days, when the young queen has sealed brood of her own, the two units may be united. This may be done by spraying the bees on the bottom of the top unit with thin sugar syrup, and those on the top of the low-



XUM

This yard has just been cut back to single-queen colonies. Still a bit of confusion in front of the tall one.

A part of the nuc yard in California.

Those little nucs surely make a neat load—180 on there and room for a lot more. We haul 300 when we take them back to Colorado.

er unit the same way, and then replacing the division board with a queen excluder. We use a single thickness newspaper in which a small hole has been broken and do not bother with the spraying. We find it quicker and less messy, with equally good results. There must be two supers of combs between the two brood nests to insure the bees tolerating the presence of two queens.

Dr. Farrar has lately recommended the use of only one excluder, this being placed immediately beneath the upper unit. This is all right if your super combs are all white and contain very little or no drone comb. But ours contain quite a lot of drone comb that has had brood reared in it and nothing is better bait to coax a queen into leaving her regular brood nest and go to wandering in the combs above. For that reason we have found it safer to use two excluders.

If the two-queen colony is made up from a two-story overwintered colony, and this is possible, it will be necessary to add another set of brood combs to the top unit at this time. If there is any nectar coming in at all it is the tendency for the colony to crowd the upper brood nest. The colonies that we use for this system of management are nearly all wintered in three stories and the top unit is given two stories at the time the division is made.

Unless nectar is available from minor spring sources it is well to be watchful of the stores situation. The use of honey is accelerated by the division for there is soon twice as much brood to feed, and for a time part of the fielders may be impressed back into nursing duty. A lack of stores at this time will defeat the purpose of the whole program.

### More Room with Increased Strength

AS COLONY strength increases more room will be needed. The two brood chambers of the top unit will need to be reversed periodically in order to provide room for the queen to expand her brood nest in the natural upward direction and to encourage the bees to carry incoming nectar to the supers above. When nectar is coming in, the supers between the two brood nests should be replaced with empty

ones as soon as they are half full, and the partly filled ones placed on top. At no time should the space between the two units be allowed to fill up. This divides the colony and defeats the tendency to store ripened honey at the top of the hive.

In our dry western climate eight standard 10-frame bodies are generally enough to contain the best two-queen colony until a part of the supers are ready to be removed and extracted. We have two yards in shallow, 12-frame equipment. This is more ideal for the type of management under discussion, but one cannot afford to junk good equipment for the sake of convenience alone.

In the middlewest where nectar contains more water, and where ripening is slower the larger sized supers will be more than a convenience, for it will take as many as 10 stories to hold the bees and ripening nectar. A 10-story hive in standard equipment is getting mighty tall. But the awkwardness of these skyscrapers is soon forgotten when one finds two and three supers of sealed honey ready to remove.

In an effort to secure better queens for making up our two-queen colonies we have begun rearing our own queens in California, and bringing them home in the nucs. In this way we have the advantage of doing our own culling, using only selected queens. The queen has the further advantage of not being subjected to the rigors of a trip in a mailing cage, nor the holding period that may come later when bad weather or some other cause may prevent her prompt introduction. No matter what the source of queens, reserve queens should be kept in nucs in each yard to promptly replace any that may prove to be poor or are lost for any reason.

As the season advances the two queens should be maintained until about four weeks before the normal close of the main honey flow. In our area this means the last week of July. But in some places I know this would mean that the colonies would only be brought up to the beginning of the flow with two queens, and would then be cut back to single-queen colonies when the flow was well begun. In areas having a short, intense flow this would be the only thing to do, I am sure.

In order to return to a single-queen unit the two brood nests are simply set together with no attempt to find either queen. The younger, better queen is almost certain to survive. The result of this operation is to provide a three-story colony for winter that is far more likely to have a good reserve of stored pollen for use the following spring and if properly crowded down as the season closes will have enough stored honey as well to insure its being a candidate for two-queen management the following season.

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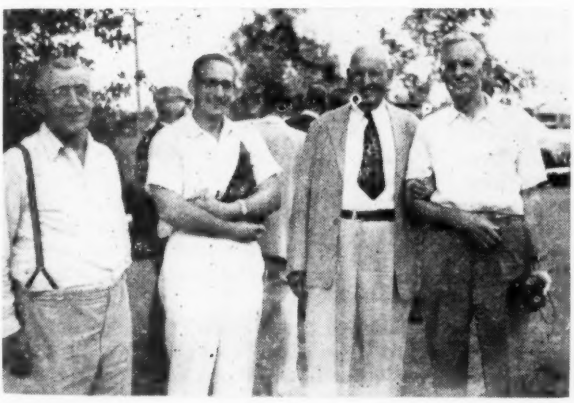

**Editor in New England**

**Caught at a New Hampshire bee meeting are J. R. Hepler, beekeeping specialist at the University of New Hampshire, Dr. H. N. Sander, Commander Johnson, and Jack Deyell, Editor of Gleanings.—Photo by Walter J. Berry, Chester, New Hampshire.**

# the HISTORY of BEEKEEPING

**Part VI**

GEORGE P. GEORGHIOU, Nicosia, Cyprus

(Continued from May)

**1916 A.D.—Chochlov** (Russia) concluded that of the six races of bees he studied, each race has a specific average tongue length.

**1917 A.D.** — Introduction of the Modified-Dadant hive. It had 11 frames with 1½ inch spacing, Langstroth length and Quinby depth. It is still used in certain states. Its principal disadvantage is that as a single unit it is too heavy for one person to lift when full of honey, bees and brood.

**1918 A.D.**—The **Aluminum Honeycomb Company** was established in California to manufacture and sell metal combs developed by a man named **McDonald.** Dipped in beeswax, these combs were occupied by the bees without much delay. However, these combs had several disadvantages and were soon discarded (see 1876).

**1919 A.D.**—First issue of the **Bee World** (England).

**1920 A.D.**—The work of **Von Frisch** (Germany) on the "Dances of the Bees" was first made public (see 1946).

First edition of "American Honey Plants" by **Frank C. Pellett**, published by The American Bee Journal.

**P. B. White** and **Elsie J. Harvey** (of England) discovered that the Isle of Wight disease is caused by a parasite, the mite **Acarapis woodi** (named later by Stanley Hirst). The disease exists definitely in England, France and Switzerland, and elsewhere.

First issue of **Bees and Honey.** Started in November 1920 as the official publication of the Alameda County (California) Beekeepers' Association with Cary W. Hartman as Editor. George W. York, one-time Editor of the American Bee Journal, became Associate Editor in 1922 and Editor in 1923. Upon the death of G. W. York, Ralph Benton, son of famous Frank Benton, became Editor. "Bees and Honey" ceased publication in 1941.

**1921 A.D.**—First experiments with radial extractors in America by **H. H. Root** and **George S. Demuth.** (A radial extractor having a horizontal shaft had been made in Europe in 1893.

**1922 A.D.**—The A. I. Root Company offered a wood base foundation (see 1872). In their announcement they told that they had tried foundation with wire-cloth base as well as thin sheet metal, celluloid, cloth, and cardboard. They reported the wood base as better than any of these. When put to the test, however, in the apiary, the resulting combs warped when the wood came into contact with excess moisture. This effort was short-lived. Beginning with the second and third years the cells were often gnawed away leaving the wood base bare.

The danger of importing the **Isle of Wight disease** into the United States, prompted the Congress to pass a law placing an embargo on all shipments of adult bees from foreign countries, except Canada. It provided, however, that such adult honeybees may be imported into America for experimental purposes or scientific study by the United States Department of Agriculture.

**1922 A.D. — Dr. J. C. Hutzelman,** (U.S.A.) announced that it was possible to save the foulbrood infected combs by sterilizing them in alcohol formalin solution. The solution was put on the market and sold through bee supply houses. This method proved expensive and disagreeable to handle and the interest it first created gradually faded away.

**Dadant and Sons** developed their wire foundation, by incorporating kinked, vertical wires in natural-base brood

**These illustrations from an old book published in Amsterdam 300 years ago uses bees to illustrate proverbs. For details see the article, "Bees Illustrate Proverbs" by H. H. Root in the January 1952 Gleanings.**

foundation. These wires were placed about two inches apart. The kinks prevented the foundation from sliding down on the wires and at the same time stiffened the wire itself. They were based on a principle suggested by **Van Deusen** of New York a number of years earlier, who was the first to incorporate wires in foundation.

**1923 A.D.**—Founding of the **Miller Memorial Beekeeping Library,** at the University of Wisconsin, Madison, Wisconsin.

Organization of the **Ontario Honey Producers' Cooperative** in Toronto, Canada. Since that time the Co-op has handled 100,000,000 pounds of honey with an average shipping membership of 450.

The **A. I. Root Company,** brought out their **3-ply comb foundation.** The center ply consists of a sheet of beeswax reinforced by a certain percentage of vegetable wax. In the milling, a sheet of the toughened wax is put in the center and the three sheets are laminated together as they pass through the mill.

**Death of A. I. Root,** founder of The A. I. Root Company, Gleanings in Bee Culture, and first Editor of "ABC of Bee Culture".

**P. Emerich** (Germany) found that anemic children had a greater increase in hemogoblin content of blood when receiving honey and milk than when milk only was added to their normal diet (see 1934).

**Arthur Hodgson,** of Jarvis, Ontario (Canada) built his Hodgson extractor.

**1924 A. D.—Dr. E. F. Phillips** left his position with the Division of Bee Culture of the U.S.D.A., and accepted the professorship of Apiculture, at Cornell University.

**Michailov** (Russia) showed tongue lengths varied in different areas, and also that in the plains of European Russia there is a regular increase in the length of the tongue from the north toward the south.

**James I. Hambleton** succeeded Dr. Phillips as Head of the Division of Bee Culture of the U.S.D.A.

**Arthur Hodgson** of Jarvis, Ontario, built the first Hodgson uncapping machine, forerunner of all automatic uncapping equipment. H. H. Root described the operation of this machine in an illustrated article in Gleanings in Bee Culture. "Two wire brushes six inches in diameter, set the right distance apart, are revolved in opposite directions at a speed of about 1000 rpm. The cappings and excess thickness of comb are trimmed off to a uniform depth, both sides at once".

Publication of "A Treatise on the Law Pertaining to the Honeybee" by the Legal Department of the American Honey Producers' League. Prepared by **Colin P. Campbell,** general counsel for the league.

The **Beekeeping Library** at Cornell University was started by Dr. E. F. Phillips. It is now dedicated to his memory.

**1925 A.D.—R. E. Snodgrass** published his "Anatomy and Physiology of

(Continued on page 378)



XUM

# A sweet trio

MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey peach chiffon pie.
—Courtesy Kellogg Co.

HOW THE weeds are growing! The grass needs cutting again, the perennial bed needs mulching and Susie's skirt must be hemmed! And inner man must be satisfied right along, though weeds, grass, and sewing needs must be attended to, too. How nice it is to be able to rely on the old honey jar. New cooks, just beginning to experiment in the honey cookery field, what pleasant thrills are in store for you! And, of course, if we can manage one really outstanding dish or treat for each meal, the family will feel well cared for though it hasn't been necessary to spend long hours in the kitchen when you would much rather be outdoors in these perfect June days.

The sweet trio offered you this month turns out maximum treats for a minimum of effort—so you can prepare them well ahead of time, knowing flavor goodness and taste appeal will improve with a bit of waiting. Yum!

**Honey Peach Chiffon Pie**

Honey Corn Flakes Pie Shell—Four cups corn flakes, 2 tablespoons honey, and ¼ cup melted butter or margarine.

Crush corn flakes into fine crumbs. Add honey and butter; mix well. Press evenly and firmly around sides and bottom of pie pan. Bake in slow oven, 325 degrees F., about 10 minutes. Cool before adding filling.

**Honey Peach Chiffon Filling**

One and ½ cups sliced fresh peaches, ⅔ cup honey, 1 tablespoon unflavored gelatin, ¼ cup cold water, ⅓ cup boiling water, 1 tablespoon lemon juice, ⅛ teaspoon salt, ½ cup whipping cream, and 2 egg whites.

Drizzle peaches with honey and allow to stand for 30 minutes. Soften gelatin in cold water; dissolve in boiling water; stir in lemon juice and salt. Combine with peaches. Chill until mixture begins to set. Whip cream until stiff. Beat egg whites until stiff but not dry. Fold whipped cream and beaten egg whites into gelatin mixture. Spread in chilled corn flakes crumb crust. Let stand until firm. Garnish with additional sliced peaches (dipped in honey) if desired. Yield: 1 9-inch pie.

**Honey Peppermint Fudge Sundae**

One quart vanilla ice cream, 1 package semi-sweet chocolate pieces, ⅓ cup honey, 1 tablespoon butter, 1 teaspoon vanilla, and ½ cup crushed peppermint-stick candy.

Shape ice cream into six balls with ice cream scoop, place in ice-cube trays in freezing unit until ready to serve. While ice cream chills, combine chocolate bits, honey, and butter in top of double boiler; heat over hot water, stirring often, until chocolate melts and sauce is smooth; stir in vanilla; cool slightly. Spoon sauce into serving dishes; place ice cream ball on top; sprinkle with crushed candy. Pass remaining sauce.

**Honey Graham Nut Bread**

Two and ⅓ cups graham cracker crumbs (28 crackers), 2½ teaspoons baking powder, ½ teaspoon salt, 1 cup chopped walnuts, 3 eggs, ⅓ cup honey, ½ cup milk, ½ cup melted shortening, and 2 tablespoons grated orange rind (optional.)

Combine graham cracker crumbs, baking powder, salt, and chopped walnuts in large bowl. Beat eggs well in small bowl and beat honey in gradually. Stir in milk, melted shortening, and grated orange rind. Add liquid mixture to dry ingredients; stir until blended. Pour batter into greased loaf pan, 9 x 5 x 3. Bake in moderate oven, 375 degrees F., 45 minutes. Remove from pan at once.

# How many can you identify?

1. .....

4, 5, 6, 7, (Left to Right) .....

8, 9, 10, (Left to Right) .....

2, 3, (Left to Right) .....

11, 12, 13, 14, (Left to Right) .....

**See page 378 for correct answers.**



XUM

# Editorials

## No 1954 Honey Taken Over by Government

IN THE "Summary of 1954 Honey Price Support Operations" reported by Commodity Stabilization Service of the Sugar Division of USDA, as of April 15th, only 16,792 pounds of honey were still under government loan. Since then 9,680 pounds have been liquidated and it is quite reasonable to assume that the balance will also be sold in private channels.

The shortage of honey this year has eliminated the need for any honey to be acquired by the government under the support program. However, this does not mean that the 1954 support program was not helpful to the industry in general. Through the program of a loan or purchase agreement, a producer could market his honey in an orderly manner without having to dump it on the market for the first bidder, to obtain needed cash for living expenses.

In past years the government has acquired surpluses of honey amounting to one or two percent of the crop which has been disposed of largely through the school lunch program and the export subsidy. The latter program has allowed part of the surplus to be distributed to foreign countries where m a r k e t s have traditionally existed.

## Ahmed Zaky Abushady

A BRIEF NOTICE concerning the untimely passing of Dr. Abushady appeared in the May issue of Gleanings. News of his death came just as we were going to press.

A man of Dr. Abushady's caliber who made such an outstanding contribution to the life of his time as well as the beekeeping industry internationally is worthy of recognition.

He was born in 1892 in Egypt. His father was a renowned journalist and member of parliament and his mother a poetess and literary woman. At the early age of 12 he wrote prose and poetry.

Later he entered the scientific field and studied medicine also apiculture, and bacteriology in particular. He was a graduate of London University. While in England he founded the "Bee World" in 1919, also the Apis Club. He recognized the need for standardization of beekeeping equipment internationally and did much to bring about a wider use of American-made hives, and especially the Langstroth system of beekeeping in Great Britain.

The book, "Blazing the Trail," reminiscences of A. Z. Abushady, by Leonard S. Harker, published in 1938 contains interesting information on Dr. Abushady's work and associations with beekeeping leaders of Great Britain. Dr. Abushady returned to Alexandria, Egypt, in 1922 and continued as editor of "Bee World" until 1926.

He was a delegate to the U.N.O. in three successive sessions and a staff correspondent of the leading Alexandria daily "Al-Basser".

Dr. Abushady resided recently in Washington, D. C., where he kept a few hives of bees. His first wife died in 1946 and he remarried in 1953.

The world can ill afford to loose such a talented man as Dr. Abushady.

## Swarms Cluster in Peculiar Places

DURING THE summer months we receive a number of calls from people saying that a swarm has clustered in an apple tree, corner of a porch, or perhaps under the back bumper of an automobile, and would we come and get the swarm. We are glad to be of service, when possible, but it is out of the question to answer all calls.

Last summer we received a call from a person connected with a manufacturing concern here in Medina, stating that a swarm had clustered inside a parked automobile, above the rear seat. Realizing that it would be difficult to get all of the bees into a hive by attempting to brush them off into it, we placed a comb containing some brood in all stages, also some honey, in a hive with drawn combs. By the time we reached the bees in the automobile, a crowd of people had gathered to watch the proceedings. Naturally, they supposed that one of us who climbed in the car to place the hive, underneath the swarm and to dislodge the bees so they would fall on top of the frames, would be stung badly. As is usually the case with swarms, no one was stung. In due time, most of the bees went into the hive containing the comb of brood and honey.

Sometimes a swarm will cluster on a trolley pole or on the electric light of a switch, as shown on the front cover page of the September 1954 Gleanings.

It would seem that county beekeepers' associations should each have a special committee appointed to render some service, so far as is possible, to people who are not beekeepers, and who report swarms on their premises. Many people have swarms between the walls of their dwellings. If it is possible to have these swarms properly taken care of, it is good for our industry.

## A Meeting for Hobby Beekeepers

OUR INDUSTRY must have new beginner beekeepers each year or it will eventually die. Beginners are needed to take the place of older beekeepers who pass on or retire from active beekeeping.

During recent years there has been a lack of young people attending bee meetings. In some instances the programs are not slanted towards beginner or hobby beekeepers. Every bee meeting should, in our opinion, have something of interest to hobby beekeepers.

During the recent national meeting in Chicago an evening session was devoted to beginner beekeepers. There was so much interest manifested during the session that the idea of holding a summer meeting primarily for the novice, somewhere in the New England states was born.

Since then the idea has taken form and a four-day beekeepers' conference is scheduled for June 16 to 19 at the University of Maryland, College Park, to which all beekeepers are invited. (See page 359 this issue.)

Some of the moving spirits promoting this conference are Jas. I. Hambleton, Division of Bee Culture and Biological Control, Beltsville, Md., George J. Abrams, Bee Extension Specialist, College Park, Md., J. Gaston Levitre, Woonsocket, R. I., and Bill Davis, Providence, R. I.

It is hoped that this type of meeting may become popular in the future and stimulate a wider interest among hobbyists and beginner beekeepers. This in turn should strengthen our industry, as some of the hobbyists eventually develop into our best commercial beekeepers.

Our industry needs more honeybees to help pollinate farm crops such as fruits, vegetables, and clovers. It is said on good authority that honeybees are responsible for 82 per cent of pollinating service rendered.

Hobbyists who have been inoculated with the "bee fever" are likely to talk bees and honey incessantly with friends and neighbors. Frequently these beekeepers are asked to talk before service clubs and thus people from various walks of life have an opportunity to learn more about honey, also the importance of honeybees in pollinating farm crops.

Beekeeping is indeed an important branch of agriculture. Hobbyists and beginners are at the very grass roots of our industry. They should be encouraged



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# Bee Facts

(A Digest of Scientific Research)

Edited by Walter Barth

## New Pollen Substitute.

JOJOBA BEAN MEAL was found to serve as well as soy bean flour in pollen substitutes, according to research completed by Dr. F. B. Wells of Bloomfield College, Bloomfield, N. J.

In a 3:1 mixture with dry nonfat milk solids it gave results comparable to those of a similar soy bean flour mixture when used as a pollen substitute.

The jojoba plant, **Simmondsia californica,** is an evergreen shrub native to the arid and often mountainous areas of Arizona, Lower California, and western Mexico. Its fruit, a single bean in a thin, brown, three-valved capsule, contains about 45 per cent oil. The benzene extracted solids amounted to 51 per cent of the whole beans and contained: protein 31.5, reducing sugar as glucose 8.9, nonreducing sugar as sucrose 3.7, other carbohydrates as starch 16.0, and other components such as calcium, ash, etc.

Wells, Franklin B. A note on Jojoba Meal-A Potential Feed. Cereal Chem. 32 157-9 (1955).

## Refining Beeswax.

A PATENT for handling beeswax used in the manufacturing of candles was obtained by John J. Naugle. According to H. B. Wells, who reviewed the patent, beeswax, mixed with 1-10 per cent of an acid treated alk. earth such as montmorillonite contg. montronite and saponite, is heated at 200-300 degrees F., blown with steam or air at 10-25 lb/in.$^2$ for 40-60 minutes and filtered. Up to one percent of an alk. earth metal oxide such as MgO is added to saponify some of the lower esters in cases where the m.p. must be stabilized as is required for candles with controlled burning times.

Naugle, John J. Refining Wax, especially beeswax. U. S. Patent 2,617,815. Nov. 11, 1952.

## How Many Times Does a Queen Bee Mate?

WHEN QUEEN bees are allowed a free flight they mate on an average of **six and a half times,** according to research by Stephen Taber, III, of the U.S. Dept. of Agriculture. His data indicated that the actual number of matings were not less than four and not more than nine. This information explodes the previous conception that queen bees mate only twice.

Readers should realize that these matings occur before egg laying starts for after the queen mates (regardless of the number of times) she remains in the hive laying eggs unless the colony swarms. Further details can be obtained by writing to Dr. C. L. Farrar, Dept. of Entomology, University of Wisconsin, Madison.

Taber, Stephen, III. The Frequency of Multiple Mating of Queen Honey Bees. J. Econ. Ent. 47:6, Pg. 995-998. Dec. 1954.

## Honey Confections.

HONEY CONTAINS more levulose than commercial invert sugar, and it is the levulose content that governs the graining of candies such as nougat, caramels and taffy. This same levulose is also noted for its moisture-retaining properties. Since honey contains minerals and vitamins it will add nutrients to any confection. So reports Wesley Childs, noted candy authority.

The specialist continues with recipes for chocolate-coated nougat bars with vanilla and chocolate malted milk flavors, and honey croquant. He concludes with tips on buying honey, review of honey research, and refers all interested readers to the American Honey Institute for more details.

Childs, Wesley. Honey in Confections. The Manufacturing Confectioner. April 1955. Pg. 55 & 56.

# Live and Learn

By Propolis Pete

WOULDN'T IT be wonderful if our bees could read the statistics and find out what a wonderful spring this is! For instance, if they could break cluster long enough, they could read that April has an accumulated excess of temperature of nearly 100 degrees. And, if the rain would let up long enough for them to fly when they CAN break the cluster, they could find out that there is a deficiency of nearly an inch and a half from the normal precipitation. Ain't statistics grand?

Actually my bees are about three weeks behind what could be called normal. Usually by the first of May they have built up quite well on the early flowers of the elm, silver maple, Norway maple, and cherry. As a rule you can see new nectar in the combs at this time, above what they need for brood rearing. This year they have only three or four frames partially filled with brood, and the only new liquid in the cells is the sugar syrup that I have been feeding for the past month.

I started feeding dry sugar around the middle of February. Ordinarily this should not be necessary, but they were a bit on the hungry side, what with the failure of the fall flow last year. Some colonies took the dry sugar readily, some about what one should expect, others took it grudgingly, and some didn't even look at it. Nevertheless, it carried them through, and about the end of March I switched to syrup, on the theory that they should have more than enough barely to keep them alive. In the mean time, it had warmed up some, so that on one of the rare nice days I could see what was going on. I may have the answer as to why they act the way they do about dry sugar. Of course it could be faulty observation on my part, but this seems to be the answer to the question.

The ones that gobbled up the dry sugar as fast as I gave it, were the powerful colonies with no stores. The ones that worked on it casually were the big ones with some stores left. The ones that took it grudgingly were the ones that were fairly weak, but also had no stores to speak of, and the ones that didn't look at it at all were the weak ones that had more stores than they needed. So, unless I am wrong, dry sugar is good if the bees need it, but the weak colonies that never should have been saved in the first place don't seem to be able to take it down. Whether that is because the cluster is not big enough to generate enough heat to keep them active when they are away from the cluster, or whether there is some other reason, I don't know.

Big or small, strong or weak, they all took syrup regardless of the strength, just so long as it had enough sugar in it to taste sweet. I fed some with only three pounds to the gallon of water, and some so thick that it would barely run in cold weather. They took it all. So there you are.

TO CHANGE the subject, I had an experience recently that is funny when I look back at it, but boy, did I blow a fuse when it happened. To prepare you for the story, let me say that every spring I try to start several colonies for sale to beginners or to neighboring beekeepers who lost colonies during the winter. Now, if you look at the supply catalogs, you'll find that it takes about $18.00 in cash money to set up a new hive with package bees. On top of that, there is maybe a dollar's worth of sugar to feed them until they are ready for a second body. So far there has been no charge for the shipping charges, the labor of assembling the hive, painting it, starting the bees in it, drawing combs with some honey and pollen, the skill of management in building them up, and all the other hidden costs. If you add $7 for that, it makes the price $25. This pays for management and labor, but doesn't add anything for overhead or profit if you want to be technical the way an accountant would be.

So, to get on with the story, just as we were eating our Sunday dinner a week or so ago, the doorbell rang. When I answered, the caller asked me if I sold bees. I told him that I had a couple of colonies that I could sell as

(Continued on page 379)



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# Stolen bees

GEORGE H. REA, Reynoldsville, Pa.

THE HIGHWAY patrolman was returning to headquarters after having almost completed his early beat on Easter Sunday morning in 1948. Always alert to activities on farms and in villages, he noticed that men were loading colonies of bees onto a truck in a large apiary of 158 colonies back some distance in a field. This did not surprise him because he knew that these bees were kept here temporarily during the winter and were moved each year about this time for the pollination of fruit orchards in a northern state. He knew the owners and had at times stopped to talk with them while they were working with the bees. He wanted to stop this time but dismissed the idea and drove on.

A few days later there was cause for regret that he had not stopped, for it was not the owners who were loading the bees but clever thieves who were bold enough to take a chance to steal the bees in broad daylight; and they got away with it for a time. They figured that because the owners lived several hundred miles away and visited the apiary only in daylight, neighbors who might see them would be less likely to be suspicious than if they came at night. The timing was also right to allay suspicion that anything was wrong about the bees being moved away. So well did their scheme work that it fooled not only neighbors who said they saw them, but also the trained officer of the law.

One of the owners had stopped on his way north from Florida and had examined the bees a few days before the theft. He found them in excellent condition, strong in bees and heavy with new honey from the early flowers of that part of the warm southeastern coastal plain. Three days after Easter another of the owners stopped to take a look at the bees and found them to be missing. Then began what proved to be 18 months of probably the most extensive and intensive manhunt and hunt for stolen bees in **the Story of Men and Bees.**

The county sherriff, the state highway patrol, the State Bureau of Investigation and the Federal Bureau of Investigation, and private citizens joined in the investigations and search. The law enforcement agencies, including the state bee inspectors of surrounding states, were notified and willingly joined in the hunt. Highway patrolmen were alerted to look out for that model of truck loaded with bees that was seen in the apiary, and to stop all truckloads of bees, for a given time, and examine the hives for a certain kind of identification known to be on the stolen hives.

National and state forest and park services, where bees were known to be kept by permission from these services, were contacted. They cooperated generously and rangers were instructed to look out for unauthorized apiaries, especially in remote places and for bee hives that might have the tell-tale markings. In some instances the rangers actually examined the colonies.

Several prominent beekeepers joined the owners of the bees in providing funds, and I was asked to take active charge in cooperation with the law enforcement agencies. It was a new but interesting field for them, and they did several months' work with a lot of enthusiasm. I travelled by automobile about 10,000 miles while conferring with the authorities and supplying information about beekeeping that was all new to many of the agents. Thousands of colonies were examined in hundreds of apiaries. In the costal area where bees were largely hidden from view by trees and brush, a low-flying helicopter was used to spot apiaries located in remote places and the search was conducted by boat for apiaries that could be reached best by water.

ONE HUMOROUS incident was reported about a prominent beekeeper innocently minding his own business while hauling a large load of colonies along a state highway. A patrolman, intent on looking for the stolen bees, with siren screeching pulled alongside and ordered him to stop. He told the

extension bee specialist of that state that he was scared stiff, for what had he done to deserve so sudden and startling a command? He obeyed and the officer good-naturedly told him what it was all about, looked over his bees, and went on.

The bees were finally found in the fall of 1949, identified by the owners, and two men were arrested for the crime. Identification was established because a coat of white paint had been put on the hives by the thieves to cover up the original coat of blue paint which the owners had put on them. The blue paint showed in some places where it had not been thoroughly covered. Another evidence of ownership was found in equipment that had been made in the shop of the owners.

All but a very few of the colonies were found and restored, and $3,000 cash for loss of honey crops and expenses was paid by the thieves, and they assisted the owners in retrieving the bees and moving them to the original location. The thieves had ingeniously mixed the stolen bees in several apiaries of their own many miles apart. The owners generously did not insist on the return of about 15 colonies that had been moved into swampland where hauling was very difficult.

That, however, did not settle the case for the thieves. The State Bureau of Investigation agent had arrested them on a criminal charge, and they were tried in court and convicted. One of the men was sentenced to from three to five years, and the other from one to three years in the penitentiary and, in addition, heavy fines and court costs. Because of good character testimonies by reliable persons and the restoration of the bees and equipment, the owners of the bees assented to leniency on the part of the court and the judge suspended the sentences on promise of future good behavior.

While this trial in January, 1950, solved this prominent case, and occasionally stolen bees are found and identified, more often the bees are never found. Bee stealing is frequent. During this bee hunt we had reported to us more than 5000 stolen colonies during recent years, none of which had been recovered even though in some cases the owners had some clues that eventually proved nothing.

The difficulty in identification of beekeeping equipment is that almost universally the hives look much alike and are almost always painted white. Following the solution of this case, some of the bee journals of this country carried articles urging all beekeepers to adopt some kind of bee hive markings that will enable them to positively identify their property if stolen.

A favorable factor in this particular case was a very liberal reward of $500 to the person or persons who would uncover evidence that would lead to the conviction of the thief or thieves.

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## Bees and Insecticides

A STUDY of the toxicity of several new insecticides to honeybees including the relationship of toxicity to the temperature, the particle size of the insecticide, its solubility, and the solvent used, was recently completed by Karl Mayer of Berlin, Germany.

Hexachlorecyclohexane was found to be one of the most serious bee poisons although it is not equal to arsenic in absolute toxicity. The symptoms develop immediately and prevent bees from returning to the hive. Although it is 200 times as toxic as DDT, the symptoms of DDT poisoning may not become apparent for a few hours. Symptoms of E605 poisoning appear after 30 to 60 minutes and those of 2, 4-D poisoning only after a few days. Such slow acting poisons may cause poisoning of the hive.

**Sprays were found less dangerous than dusting preparations.**

Camphor was discovered to be a good bee repellent when added to sprays. In this test it was added to DDT powder and one per cent lime-sulfur and 0.05 per cent nicotene sulfate. Magnesium chloride or other hygroscopic materials with arsenicals repelled bees because the latter were repelled by damp plants. Other materials were also listed as short term repellants.

Mayer, Karl. NachrBl. dtsch. PflSch-Dienst., 4:201-5(1950) (In German); Chem. Zbl. 1951, I. 1370-1; Chem. Abstr. 47: 12745b (1953).



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# FROM Foreign LANDS

## Dutch Treatment for Moldy Frames.

BEEKEEPERS frequently have old stored combs that have become moldy in time. Beekeepers in Holland have found a new way to combat this problem. They dip the moldy combs into a tub of lukewarm water to which has been added some soda. The combs are returned to the bees while they are still damp.

Maandscrift voor Bijenteelt. Jan. 1954.

## How Much Water in Beehive in Winter?

IF A COLONY consumes three pounds of honey per month from mid-October to mid-April, there is a gallon of invisible water vapor ready to condense on cold inner covers. If the hive is kept dry, and the bees have frequent flights there is no cause for alarm.

The Irish Beekeeper. Feb. 1955.

## Royal Jelly for Sale.

AN ADVERTISEMENT for packaged pure royal jelly appeared in a French medical journal (see illustration). **Here is what the advertiser says:** "Health. . . .Pep. . . .Freshness. . . .

"Bee royal jelly is that peculiar, rare, and invaluable substance on which the larva feeds until her third day and which feeds the queen all her life. Could it be that this sublime nourishment makes her live 400 times as long as the working bee (5 years instead of 45 days), giving her strength, beauty, balance, superior intelligence?

**"It is a natural and powerful food**—Royal jelly (also called 'the milk of the hive') contains the group B vitamins, carbon, hydrogen, nitrogen, ergosterol, and above all, panthothenic acid. For this reason royal jelly can play an important part in the human diet.

**"Start today your cure of 'Apiserum'** —**Apiserum** is a balanced pure solution of royal jelly which gives the human organism rich nourishment, a natural hygenic super-food. **Apiserum** is sold exclusively in drug stores."

No information on the distribution of **Apiserum** in the United States is available to Gleanings. Interested readers should contact their local health store for further information.

Vivre Teune. Le Magazine Serieux De Vulgarisation Medicale. Pg. 27. No. 3. March 1955.

**Apiculture Building at the University of Maryland. Those attending the Eastern States Beekeeping Conference are asked to register here.**

## Eastern States Beekeeping Conference

**University of Maryland, College Park**

**Thursday, June 16**

Busses and cars make first campus stop at Apiculture Building.
Advanced Registration
Housing Arrangements (until 9 p.m.)
6:00 p.m. Dinner—Dining Hall
8:00 p.m. Informal Social Gathering — Apiculture Building
Host — Maryland State Beekeepers' Association

**Friday, June 17**

8:00 a.m. Registration
Inspection of Exhibits
10:30 a.m. Call to Assembly — George J. Abrams, Chairman Apiculturist, University of Maryland.
Invocation — Rev. Nathaniel Acton, St. Andrews Episcopal Church
10:35 a.m. Welcome to University of Maryland — Dr. Wilson H. Elkins, Pres., University of Maryland
10:45 a.m. Welcome to Maryland Free State — Hon. J. Glenn Beall, U. S. Senate.
11:00 a.m. Address—James I. Hambleton, Head, U.S. Bee Culture Lab.
12:00 a.m. Lunch — at the Apiary
1:00 p.m. "The Queen Honeybee" — W. J. Nolan, Apiculturist, U. S. Bee Culture Lab.
1:30 p.m. "This is New England Beekeeping" — J. Gaston LeVitre, Pres., R. I. Beekeepers' Asso.
2:00 p.m. "This is South Atlantic Beekeeping" — Harold L. Kelly, Pres., Md. State Beekeepers' Association
3:00 p.m. "Honeybees and Soil Conservation" — Dr. Benjamin Ispur, Soil Conservationist, Amherst, Mass.
3:30 p.m. Demonstrations in the College Apiary: Requeening; Hiving a Package; Moving Colonies with Ammonium Nitrate; Practical Swarm Control; Removing the Honey Crop; Assembling a Beehive.
6:00 p.m. Dinner — Dining Hall
8:00 p.m. Square Dance — Eb and Ely Square Dance Callers and Orchestra.

**Saturday, June 18**

9:00 a.m. "Photo-Periodicity in Plants & Animals" — Dr. H. A. Borthwick, Beltsville Research Center
9:30 a.m. "Control of Insects Through Microorganisms" — Clarence G. Thompson, Beltsville Research Ctr.
10:00 a.m. "Normal and Allergic Reactions to Honeybee Stings" — Dr. Howard M. Bubert, Head, Allergy Clinic, Univ. of Maryland Hospital
10:30 a.m. Bus Tour of Beltsville Agriculture Research Center and visit to U.S. Bee Culture Lab.
12:30 p.m. Lunch — Dining Hall
2:00 p.m. "Royal Jelly" — Dr. Tage S. K. Johansson, Queens College, Flushing, New York
2:30 p.m. "History & Present Status of treatment of Bee Diseases" — Albert G. Michael, Microbiologist, U.S. Bee Culture Lab.
3:00 p.m. "Colony Morale and Swarm Control" — Prof. E. J. Anderson, Prof. of Apiculture, Penn. State Uni.
3:30 p.m. Panel Discussion — Questions and Answers
7:00 p.m. Banquet — Dining Hall
Toastmaster — Harold J. Clay
Address — To be Announced
Presentations of Awards — Photo Contest — Slogan Contest

**Sunday, June 19**

8:30 a.m. Breakfast — Dining Hall
Chapel Services—University of Md. Chapel
10:00 a.m. Bus tour to places of interest in Washington (Optional Trip)
12:30 a.m. Lunch — Dining Hall



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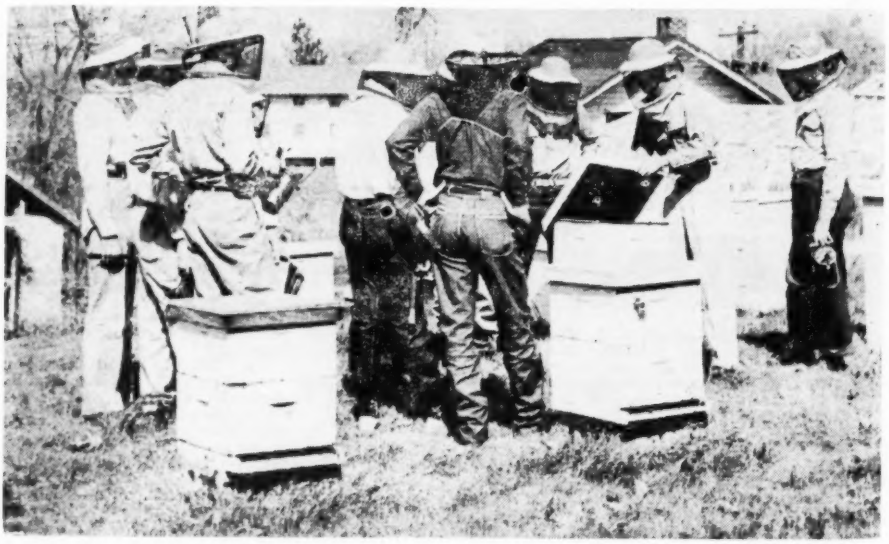
# News

**"Bees Help Cucumber Crop"**

**Harry Vandenburg (left), LaGrange, Ohio, and Barney Lingren, Manager of The Falls Greenhouse at Olmsted Falls, Ohio, examined some cucumbers that resulted from honey bee pollination. Mr. Lingren found that he couldn't get much of a cucumber crop without honeybees. Six colonies to every acre of cucumbers in the greenhouse were sufficient to insure proper pollination of all the blossoms. The bees were provided by Mr. Vandenburg, a commercial beekeeper.**



**Beekeeping class at Mississippi State College prepares to work in the College Apiary. The course, which is a part of the curriculum of the Department of Zoology and Entomology, stresses practical application of theory learned in the classroom. The instructor is Professor C. A. Wilson.**

# reel

David Kuhn, left, and Herb Freeman of Osceola, Florida are putting on a demonstration in handling bees.—Photo by W. F. Skinner, Kissimmee, Florida.

W. E. Watson, Jefferson City, Tenn., is watching his bees bringing in early supplies of nectar and pollen.



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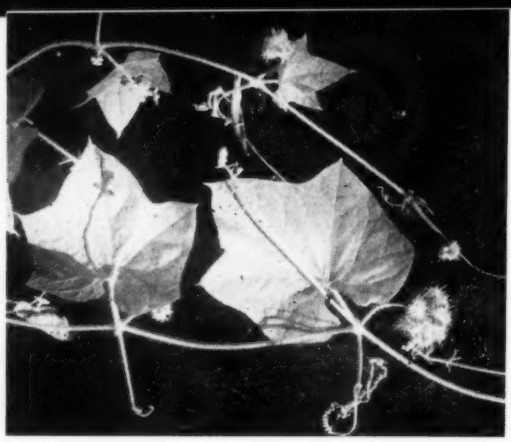

# Let's talk about honey plants

HARVEY B. LOVELL,
University of Louisville

(Sicyos angulatus)
Wild Cucumber

**Maine.** The last report on pollen comes from my home state. Donald C. Chandler of New Gloucester writes: "We first noticed the bees bringing in pollen on April 7th. The pollen was a dark grayish color. On April 12th, they were bringing in three colors, a greenish one, a yellow one, and a pollen with a green tinge. Half of the bees were bringing in pollen, the other half were bringing in nectar probably from willow, for they were flying across the field and pasture toward a river."

**First Surplus.** What species of plant gave you your first surplus in 1955? Please write me and give the details including a description of the honey. A specimen of the honey would also be appreciated, in the comb or extracted. A half pound is sufficient.

**The March Freeze.** The near-zero weather in late March was very hard on both bees and honey plants, particularly in the southeastern states. Even as far south as the Gulf Coast nearly all the flowering plants were killed back. The tung oil trees in southern Mississippi which were well advanced and just coming into bloom were frozen so severely that they will be a complete loss in 1955.

The package beekeepers in the southern states also were hurt badly by the freeze. One told me that it cost him hundreds of dollars a week for extra sugar. Many also had to delay their shipments of queens and packages. The citrus groves of Florida were not badly hurt by the frosts according to A. M. Winchester of DeLand, but such plants as hibiscus, poinsettias, and similar plants were severly damaged, but they were back to normal condition by April 30. Orange trees bloomed from two to four weeks late in most parts of Florida, however.

**Wild cucumber** is a honey plant which occurs on many state lists but which is rarely mentioned by beekeepers. A. O. Smith, Mt. Vernon, Indiana, however, writes that in one week in September, 1940, he had several colonies fill extracting combs in full-depth supers. He adds that never again does he expect to do this from wild cucumbers because of the extensive spray program in the corn fields. There are several species called wild cucumber but in the central states this is almost always the spiny cucumber (**Sicyos angulatus**) which has the fruits covered with spines giving them the appearance of small burrs (see above.)

**Bitterweed** honey is one of my nominations for the worst honey. Mr. L. H. Little, State Apiarist of Tennessee, wrote that the honey sometimes has such a strong odor that young bees crawl out of the hive. When he opened some of the hives, the odor gave him a headache. The honey is collected so fast that some colonies have two to three supers unripened in a good year. As much as 100 pounds is stored. Bitterweed honey makes deep yellow combs which are really quite beautiful. At least part of the bad flavor is due to the pollen in the honey. Bitterweed honey is stored late in the summer and makes excellent food for wintering.

Farris Homan at Shannon, Mississippi, showed me through some of his apiaries recently. Several frames showed the deep yellow color of bitterweed combs. In addition to shipping queens and package bees, he is going more and more into the business of making

honey. He gave me an interesting sample of his last year's honey which is made partly from white clover plus the addition of several other kinds. The honey is a medium amber with a pleasant, interesting flavor, quite different from that of white clover by itself.

Mr. J. Deason of Hightstown, N. J., asks what I think of Hubam sweet clover as compared with Ladino clover for planting in his area. Reports from Hubam have been very good in many parts of the South where it is rapidly becoming a major honey plant. I see no reason why it would not yield well on lime soils in New Jersey. Reports from Ladino have been more spotty, some beekeepers finding it excellent and others reporting their bees barely visit it.

He also asks about "Japanese buckwheat" by which I presume he means the plant often called Japanese bamboo (although it is really a species of knotweed closely related to heartsease). There is no question that bees go for this plant in late summer and fall. It makes a beautiful stand along roads and might be good also along fences. Although it is hard to eradicate, it does not spread very much.

**Buffaloberry.** Beekeepers rarely mention this plant although it occurs in lists of honey plants from several northwestern prairie states. Leslie Walling of Trenton, North Dakota, writes me that it blooms from May 5 to 15 and that his bees work it, but apparently store no surplus. Buffaloberry is being planted for wind-breaks because it is very hardy in cold, barren locations. It is highly recommended for wildlife both as a cover plant and as a food plant. There is a fine row of this attractive shrub along one side of Pellett Gardens at Atlantic, Iowa.

## Bee Lore

Illustrated by
V. R. Stephen

Honey in cosmetics. Madame Dubarry, the famous French beauty, used honey extensively in her toilet preparations. Poppea, the attractive wife of Nero, is reported to have used honey and asses' milk as a face lotion. Today, Japanese women of noble birth use a hand lotion of fresh honey daily and their lovely hands are attributed to the honey.



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# A Talk to Beekeepers

M. J. Deyell

### Beekeepers May Get Into a Rut

MOST OF US move along the line of least resistance. It is easy to do the same old thing in the same old way each year. It seems to me we should investigate modern methods of handling bees and do some experimenting. However, in my opinion, it is unwise to experiment on too large a scale. For example, if a beekeeper wants to try out a certain method of introducing queens, manipulating hives, or some other phase of beekeeping, he should select part of an apiary, instead of all of it for the experiment. He should have some check colonies alongside of the colonies devoted to experimental work in order to make a comparison. Things are what they are by way of comparison always.

If a beekeeper devoted an entire yard to an experiment and it did not turn out well he would likely lose a considerable amount of surplus honey. If he devoted a few colonies to the experiment, he would not lose so much honey in the event that the experiment did not turn out well.

This spring I have been doing some experimental work on different phases of beekeeping. During the years I have tried dividing strong colonies of bees at the beginning of the fruit bloom and dandelion honey flow, giving the queenless divisions young, laying queens, in order to take advantage of the amount of brood and bees in these powerful colonies to secure a larger crop of surplus honey.

Different methods have been advocated for dividing strong colonies. One method consists of raising some frames of brood into a super, above a double-screened inner cover, and introducing a queen to the bees and brood that has been raised above. This works out quite well if the dividing is done during a honey flow when it is comparatively easy to find the queen. It really is quite a job to find a queen in a very large colony of bees. Sometimes you can find her on the first comb and at other times you have to look through all of the combs to find her. Just the other day I was about to give up finding a queen. I removed the last comb at the side of the hive and there was the queen on the outside of this comb, that is, between the comb and the wall of the hive. She must have been sneaking out of my way as I had removed each comb from the brood chamber.

M. J. Deyell

### A Method I like

This has reference to dividing a strong colony and putting the new division along side of the parent colony, instead of raising the new division above, on an inner cover. This method does require an extra cover and bottom.

I do not have to find the queen. I simply lift the upper chamber off onto a bottom board, then give it a cover. This chamber is likely to have ample honey, brood, and young emerging bees, also pollen. So long as there is some brood in the bottom chamber, that is what counts. Many of the old bees will return to this parent hive. Four days after lifting the top brood chamber off, I examine the brood chambers. If I do not find eggs, I know the queen is in the other division, so I introduce a young, laying queen. If I find eggs I know the queen is in this division. This dividing should be done during a honey flow, so that the divisions set onto the new stands may not be robbed out, also that the queens

introduced may be more readily accepted.

On April 30 of this year I divided two strong colonies in the manner just described and it so happened that the queens were left in the lower chambers. I would prefer to have this happen, as it is easier, as a rule, to have queens accepted by divisions that are set onto new stands. There are fewer old bees in these divisions. When I examined the divisions set on new stands, four days after dividing I was rather surprised to find so many bees in them.

It may be necessary to feed sugar syrup to divisions, if there should be a dearth of nectar for a time following the time divisions are made.

### A Disgusting Experience

MOST OF US have to learn the hard way. When I was introducing a queen recently, I thought it would be a good idea to let some of the attendant bees that were with the queen in the mailing and introducing cage escape while I removed the perforated metal on the end of the cage. Some of the worker bees left the cage but the queen was too smart for me. She sneaked out of the small opening, quick as a flash, before I could put my finger over the hole. A few years ago I had a similar experience but later on, upon examining the hive, I found the queen busy performing her duties. As I recall, however, that queen belonged to the colony and flew off the comb into the air as I was examining it. I had been told that such queens would return in due time.

I hoped that the queen that flew away recently would also return so I left the hive cover off for a time while I examined some other colonies in the yard. Within a few days I examined the colony again but did not find any queen. And so, the moral is, don't permit attendant bees to leave the queen cage unless you are in a bee-tight building near a window, or, in your automobile with all of the doors closed.

### A Handy Method to Remove Attendant Bees from Cages

If one has a number of queens to introduce and wishes to get rid of the attendant bees before introducing, a small piece of queen excluding zinc covering the hole in the end of the cage placed in an upright position, will permit the workers to pass through the excluder and will keep the queen in. Most of the workers will find their way through the excluder zinc in a comparatively short time.

Swarms do select peculiar places to cluster as this photo of Edward Muldoon, West Alexandria, Pennsylvania, shows.

### A Word about Swarming

This may be a swarming year. At the present time the colonies in this area are quite populous due to an unusually good spring honey flow. The scale hive west of the Gleanings office gained over 40 pounds in a little over three weeks. A part of this time bees were kept in their hives because of cool weather and rain. They surely did make up for lost time when the sun shone and the temperature was warm enough for nectar secretion. The bees worked fruit bloom and dandelion also yellow rocket which, for some unknown reason is quite plentiful in this



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area at present. Some people call this plant wild mustard but I am told, on good authority, that there is a difference between yellow rocket (**Barbarea vulgaris**) and black or wild mustard, (**Brassica nigra**). At any rate, the bees worked this yellow rocket heavily. Some colonies stored over a shallow super of surplus honey which has a rather pleasing flavor and is light amber in color. I extracted four shallow supers of this honey which has a heavy body.

### Swarming

There are a few beekeepers who guage their success in beekeeping by the number of swarms that issue from hives during the season. Some beekeepers have each queen's wings clipped so that a swarm cannot leave for the woods, but, rather, will return to the hive because the clipped queen, not being able to fly away with the swarm, will return to her hive, providing the alighting board extends to the ground so that she can easily gain entrance to the hive.

There are others who do not clip the queen's wings but permit the swarms to cluster on small trees and bushes nearby, then hive them. In this way the beekeeper can increase the number of his colonies during the season. When a strong colony of bees is divided as is the case when a swarm issues and is put into a new hive on a new stand, this hive of bees and the parent hive are not likely to store as much surplus as the colony would if swarming did not occur.

### What To Do When a Swarm Comes Out

THE OLD method of handling a swarm was to put it in a hive on a new stand. A much better method is to set the old or parent hive from which the swarm issued, on a new stand at least six or eight feet away, turning its entrance away from its former position. Another hive containing either full sheets of comb foundation or drawn combs is placed on the old stand to contain the swarm that has issued. Frequently the swarm will cluster on the limb of a tree. Sometimes the swarm clusters on the top of a tall tree which causes the owner to do some tree climbing. If the limb is not large it may be cut off and the swarm shaken directly at the front of the hive on the parent stand.

If it is not feasible to saw off the limb, the swarm should be shaken into a large two bushel basket with a wire wound around one of the handles so that after the bees are shaken into the basket, the handle of the basket may be wired to the limb of the tree temporarily until the swarm including the bees in the air, have clustered on the inside of the basket which hangs from the limb in such a position that the bees may cluster on the inside of the basket, below the handle. After the swarm has clustered it may be carried to the hive prepared for it.

A comb of brood taken from another hive and put into the hive intended for the swarm will attract the bees and cause them to get established quickly in their new home.

In a short time the parent hive that has been moved to a new location should have a young laying queen. If swarming occurs early in the season and the honey flow is long drawn out, this parent hive may store surplus honey but usually no surplus may be expected from the parent hive that season.

**Congestion within the hive is the main cause of swarming** so it is essential that supers be given to colonies a little in advance of the time they are actually needed. Carloads of honey are lost throughout the country each season, because adequate comb space is not supplied in time to prevent swarming, also to contain the available crop of honey.

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## Our Cover Picture

IT'S SWARMING time, and Clint Watts, son of Charles Watts, of old Hickory, Tenn., is interested enough to want a close inspection. (Central Feature News photo.) Reports coming into Gleanings indicate a lot of early swarming which is probably brought on by comparatiely heavy early flows from yellow rocket and other spring sources.

# Asked & Answered

### Indications of Swarming

Question: Does the presence of drone brood and queen-cell cups in the hive indicate swarming?—Ohio.

Answer: During June the presence of drone brood and queen-cell cups may be considered remote indications of swarming, but the colony is not definitely committed to swarming until eggs are laid in the queen cells. Colonies that are properly managed may have drone brood and queen-cell cups (the base of queen cells which are empty) but go through the season without swarming. When eggs or small larvae are found in the queen cells the colony is then definitely preparing to swarm and will swarm about the time the first of the queen cells is sealed unless something happens to prevent. In well-managed colonies the bees can sometimes be induced to give up swarming, even after eggs or small larvae are found in the queen cells, by destroying these cells and giving more room ventilation or shade if necessary. Sometimes after queen cells have been started, especially toward the close of the season, a sudden stopping of nectar secretion may cause the bees to give up swarming.

### Value of Decoy Hive

Question: Is it well to set several empty hives around over the farm a little distance from the bees to catch stray swarms?—Pa.

Answer: If in a locality where there are many absconding swarms, you should be able to capture some in this way. Usually decoy hives are placed in a tree or on top of a pole some distance from the ground. However, sometimes a swarm will go into an empty hive that is standing in the apiary. Where bees are properly cared for during the swarming season there should not be many absconding swarms, and you may be disappointed in the number that you are able to capture in this way.

### Several Virgin Queens in the Hive at One Time

Question: I found several virgin queens in one of my hives. Why should these virgin queens live peacefully together in the same brood nest when their appearance and activity indicated that they were several hours old?—Connecticut.

Answer: Virgin queens do not attack and kill each other immediately upon emerging, but will sometimes remain without fighting for several hours after emerging. Usually after the first of the young queens has emerged the bees apparently hold the others prisoners within their cells or in some way prevent them from emerging, unless further swarming has been given up. It is possible that all but one of these seven virgin queens had been held prisoners in their cells until the hive was opened, which disturbance caused the bees to cease their guard, thus permitting the other young queens to emerge which they will do immediately under these circumstances.

### Prevention of Afterswarming

Question: To prevent afterswarms is it wise to cut out all of the queen cells except one to make sure of one queen only? If so, when is the proper time to do this?—Pennsylvania.

Answer: In general there are two methods by which afterswarming can be prevented. One is to destroy all but one of the queen cells five or six days after the prime swarm has issued, as you suggest, and the other is that of robbing the parent colony of most of its bees just before the afterswarm would issue. The first method is often employed in localities where the main honey flow is late in reference to the swarming season, so that the parent colony should store surplus the same season. Great care should be taken in order not to overlook any cells, and the one that is left should be the finest and best-appearing. The other method is used chiefly in localities where swarming occurs in the midst of the main honey flow, since by this method the field bees left in the parent colony are transferred to the swarm, the supers being on the newly-hived swarm. The parent colony in this case is not expected to be able to store surplus the same season. The parent hive is robbed of most of its bees by hiving the prime swarm in a new hive located on the old stand, moving the parent hive to one side, then on the seventh day carefully moving it to a new location so that the flying force of bees on returning from the field will enter the new hive. This so depletes the parent colony that it can not cast an afterswarm, provided this is done at a time when most of the field workers are in the field.



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# Just News

The Annual **South Dakota Beekeepers' Association** meeting will be held Monday, July 18th at South Dakota State College, Brookings, South Dakota. Everyone is welcome.—Warren Miller, Director, Plant Industry.

The **Westchester County Beekeepers' Association** will hold its first outdoor meeting on Sunday, June 19, at 2:30 p.m. at the home of Mr. and Mrs. Roland Block, 12 Gedney Circle, White Plains, N. Y. This is an opportunity for all new and prospective beekeepers to see the workings of a hive which will be inspected by our expert beekeepers. Women are also welcome, and a pleasant afternoon is in store for all those who attend. Refreshments will be served by our "Queen Bee Hostess."—Mrs. Alfred Roth, Pub.

The **Michigan State Beekeepers' Association** will hold its annual meeting Friday, July 15, at the Ionia Free Fair Grounds. This meeting, which will start at 10:00 a.m., will feature talks of interest to beginners and commercial beekeepers. A 1955 Honey Queen and honorary life members in the Association will be chosen. A pot-luck lunch and supper will be held on the grounds. Coffee and ice cream will be served by the Association.

June 20 to 22 is the date for a new **Queen Rearing Short Course** to be offered at The Pennsylvania State University, State College, Pennsylvania, by Dr. E. J. Anderson and W. W. Clarke. The course, which will be limited to 20 students, due to the nature of the demonstrations, will cost $5.50 for residents of Pennsylvania, and $10.50 for non-residents.

The regular Short Course will be given August 22 through 26, by the above mentioned instructors and Mr. George Rea. Complete details may be obtained from Mr. D. R. McClay, 203 Dairy Building, State College, Pa.

The **Southern Tier Beekeepers' Association** will hold its next meeting at 8:00 P.M., Tuesday, June 14th at the Reynolds Radio and Appliance Salesroom, 25-27 Sturges Street, Binghamton, New York. Dr. E. J. Dyce, Cornell beekeeping specialist will be the guest speaker. A light lunch will be served.—H. B. Webb, Secretary.

The **Connecticut Beekeepers' Association** next meeting will be held June 25, at the home of Mr. and Mrs. Macklin Cunningham, Goshen, Conn. The meeting will start at 10 a.m. and there will be a speaker. A feature of the day will be a standard brood comb contest open to all beekeepers with several prizes to be given. Lunch will be pot luck and the meeting will be held rain or shine. Coffee will be furnished. All beekeepers and others interested in bees are welcome to come and enjoy the fellowship of the gathering.—Philemon J. Hewitt, Jr., Chairman of Pub.

The **Middlesex County Beekeepers' Association (Mass.)** will hold its second outdoor meeting of the season at the home and apiaries of member Olga S. Allers, 61 Hunnewell Street, Wellesley Hills 82, Mass. This is the first time that a meeting has been held at Mrs. Allers' home and the members look forward to it with great pleasure. The meeting will be held on Saturday, June 25, at 2 p.m.—L. C. Proctor, Sec'y.

The **Midwestern Beekeepers' Association** will meet June 12th at 2:30 p.m. at the farm home of Mr. and Mrs. William Brite, Gardner, Kansas. The farm is located one mile east and two miles south of Gardner. Watch for signs. An interesting program is planned. Boys of 4-H beekeeping will demonstrate. Drawing for door prize. Refreshments by Ladies' Auxiliary. Please bring chairs.—Mrs. William Brite, Sec.

The **Third American National Honey Show,** scheduled for August 12 through 20, will be held at the State Fair Grounds, Springfield, Illinois. All entries for exhibits close Friday, August 5, excepting entries to be shown in Class J (for the American Honey Institute Trophy) which may be delivered as late as 5:00 p.m., August 11. Arrangements have been made to ac-

cept exhibits any time previous to above dates.

No application for space is necessary for exhibits, however, entries for this show must be filled with the Secretary, by August 8, 1955. Entries made after this date will be considered only if space is available. Only one entry will be permitted in any lot by one exhibitor, and only one member from any family or household may make entry in any lot. Exhibits may be shipped by prepaid express, care of Carl E. Killion, Superintendent, State Fair Grounds, Springfield, Illinois.

Labels and cartons for reshipping exhibits by general carrier must be supplied with exhibit. Non-compliance with this rule renders the Superintendent's responsibility for return null and void. Every effort will be made to return each exhibit intact, or the proceeds of sale of exhibit, if it is the desire of exhibitor that such be sold. These articles to be exhibited must be accompanied by an invoice, listing each item and its evaluation.

The judging, to be made by Mr. E. C. Martin, East Lansing, Michigan, and Miss Mary Perisho, Paris, Illinois, will be based upon the score card shown after each class. Complete details on this show can be obtained at no cost from Mr. Carl Killion, Paris, Illinois.

**Changes in Who's Who in Apiculture.**—Joseph E. McCauley has been appointed as State Bee Inspector for Washington.

B. R. Ellison, 412 Capitol Bldg., Salt Lake City, Utah, has been appointed as State Bee Inspector for Utah, and is also Secretary of the State Association.

The **Iowa Beekeepers' Association** has accepted the kind invitation of Mr. and Mrs. Carl Soder, of Stratford, Iowa, to hold the annual summer meeting of the Association at their new honey house on Saturday, July 9. Details of the day's activities are being developed for announcement in the near future.—F. B. Paddock.

**Ohio Summer Bee Meetings:** The first all-day meeting will be held on Saturday, July 16, at North Minisillen School at the intersection of State Routes 42 and 62, a few miles north of Louisville, Ohio, in the vicinity of Canton. Stark County Association will be hosts. The second all-day meeting will be held on July 30 in the Church Hall in Blue Ball, Ohio, which is located at the intersection of Routes 25 and 122 near Middleton. The Southwestern Ohio Association will be hosts and meals will be served on the grounds.

A new book entitled, " How to Keep Bees and Sell Honey," by Walter T. Kelley, Clarkson, Kentucky, editor of "Modern Beekeeping" has just been released. This book is well illustrated and easy to read. It is down to the level of beginner beekeepers and contains 16 chapters which deal with some problems confronting commercial as well as hobby beekeepers. The author has handled bees on a large scale for many years and is qualified to share his experiences and opinions with others. The price is 75 cents.

**Ross E. Wyant,** Sylvania, Ohio, a well-known commercial beekeeper died recently. Mr. Wyant lived near the Michigan-Ohio line and had apiaries in both states. He was a fine gentleman and a good beekeeper. He will be missed.

The Cook-DuPage Beekeepers' Association will be host to the summer meeting of the **Illinois State Beekeepers' Association** on Sunday, July 24th, at Fernwood Park (104th Street and Lowe Avenue, Chicago). Complete details will appear in the July issue of Gleanings. Interested parties may contact Mr. A. J. Smith, 5835 W. 127th Street, Worth, Ill., who can supply more information.

**Guy Shaw,** of 506 North Rowland, Harrison, Arkansas, has been selected as "Beekeeper of the Month."

Mr. Shaw has an apiary of 15 colonies of bees. He is serving his third year as President of the North Arkansas Beekeepers' Association and second year as a member of the State Executive Committee of the Arkansas Beekeepers' Association. He also serves as an Officer in the Grange.—Gladys McKay, Secretary.



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# From the Field of Experience

## Progress in Royal Jelly Research

ROGER A. MORSE, State Plant Board, Gainesville, Florida

THE FACTORS responsible for the physical differences between the queen and worker have puzzled man for centuries. Royal jelly, a secretion of the pharyngeal glands of the adult worker bees, is known to play an important role in this differentiation and since it can be harvested in some quantity has recently been marketed in combination with various products.

Since royal jelly is a highly concentrated food, responsible for remarkable changes in the beehive, it is only natural that man with his desire for self improvement should seek it out. Scientists were prone to view the recent proceedings with a jaundiced eye but at the same time were unable to properly advise the manufacturers of commercial products as to its real importance and usefulness to mankind.

The recent research by Weaver* serves now to clarify the picture and make us more aware of the value of royal jelly. Weaver's research shows that royal jelly contains either a highly labile substance (s) (a labile substance being one that is likely to undergo change) or a substance (s) which becomes unavailable to the honeybee larvae when the jelly is stored.

Worker larvae 36 hours old which were fed in the laboratory and where other bees could not come into contact with them developed into essentially normal queens when fed royal jelly taken fresh from the hive every two hours. However, when royal jelly was stored under various conditions and for various lengths of time, only worker bees were produced.

This piece of research can probably be considered one of the outstanding contributions to apiculture in recent times. There will probably be, as a result, an immediate falling off of interest in the use of royal jelly since there is a breakdown or change upon storage. This work, however, should serve to stimulate interest in the diet of the honeybee and help researchers to formulate a synthetic diet. Devising the synthetic diet for the honeybee will help to settle the long disputed question concerning the value of pollen substitutes and answer questions concerning colony management during the wintering and spring build-up periods.

* Weaver, Nevin
Rearing of honeybee larvae on royal jelly in the laboratory. Science 121 (3145) :509-510. 1955.

## Comb Honey Management

ROBERT E. LYON, Collins, New York

A LOT OF beekeepers have developed different ideas for producing comb honey, which are generally very practical. I would like to submit another method for consideration of other beekeepers. This system has worked for me.

Pick strong colonies having young prolific queens and when they begin to bring in clover honey fairly well, fill the brood chamber with ten frames of practically all capped brood with perhaps some about ready to be capped and also the queen. Then shake all the bees off the combs into the top or in front of the hive. If I don't have enough frames of solid brood for the brood chamber I will borrow the balance from another colony after shaking the bees off and replace them with combs that I didn't use for the comb-honey colony. Then give this comb-honey colony one or two supers with one or two bait combs in. I have some drawn extracting combs the depth of comb-honey supers that I may use for baits.

One can put a screw or two in the bottom edge of the end pieces of these half-depth frames leaving the heads out just far enough to hold the separators between them and the sections straight. A colony fixed this way will have no place to put honey except in the comb-honey supers until some brood has emerged and if the queen is prolific, she should fill these brood combs with eggs again.

If the colony was strong in bees in the first place what will they be when

boosted with ten frames more of newly emerged bees? All of the nurse bees that were shaken off the combs not used can become honey gatherers also. I am going to try to have combs of capped brood without an excess of drone brood. Now, do I hear some one say "How about swarming?" I am wondering about that, too. I never liked to tear colonies apart to cut out queen cells. I talked with another beekeeper a year or two ago that had used a method somewhat like this and he said he didn't have any trouble with swarming, to speak of. I think if the bees hadn't started any preparations for swarming, this drastic change around in their home may prevent any thoughts of swarming.

I would welcome any criticism on this method of producing comb honey.

[We shall be glad to hear from Mr. Lyon after he has tried out his method this season. One possible objection to adding combs of brood to a colony at the beginning of a honey flow is that the bees that emerge from cells at that time would not be quite old enough to go to the fields. Bees become fielders about two weeks after emerging from the cells. Sealed brood given to colonies a few weeks prior to the flow would increase the field force and should result in a larger crop of surplus honey.—Ed.]

## Honey from Wild Radishes

PAUL HADLEY, Philadelphia, Pa.

AMONG THE unusual plants which ordinarily one would never think of as being important to bees is the wild radish. In some sections this weed makes a great pest of itself, covering large acreages of cultivated fields, orchards, etc., and is practically impossible to eradicate. It is evidently an escape of the cultivated radish, for it has numerous blooms of white, pink, or lavendar, while the true wild radish has yellow blooms similar to the mustard. The roots of the wild radish are small, tough, and stringy, but what the plant has lost in quality it seems to have gained in vigor, for once a field has been infested with the plants they seem to be there to stay, despite frequent and thorough cultivation.

The writer has seen fields in the Pocono Mountains of Pennsylvania which were a solid mass of radish bloom, although the fields were cultivated weekly. Bees were working the flowers in great numbers, but as the radish blooms came in midsummer when other species of flowers were practically non-existent, perhaps their liking was a matter of necessity rather than preference. The fact remains, however, that the bees **do** work this plant. And as whole farms are often infested with the wild radishes, it would seem that in those particular sections, at least, the radish is an important midseason honey plant.

Another "escape" plant that the bees were observed working was the bouncing bet. This was originally a favorite plant of our grandmothers' gardens, but escaped to the roadsides, and now in some sections large acreages of the blooms may be seen, usually along railroad tracks and by roadsides.

A plant that in some sections of the eastern states is worked to the preference of most others in midsummer is the vipers bugloss, or blueweed (**Echium vulgare**). This plant comes into bloom about July 1st when honey blooms are at a low ebb, and blooms until September.

Wild radish in bloom.

# A Better Plan of Feeding Sugar

WAYNE KELLER, Oshkosh, Nebraska

FEEDING BEES generally is a losing proposition. I do not mean that you should let your bees starve, but it would be better to leave more honey for wintering.

Try holding back some honey without letting bees have access until the building-up period. It may be necessary in this connection to rob pollen from old colonies to make the honey last through winter. While bees do not waste honey, they do sometimes maintain stronger colonies throughout the winter than is absolutely necessary. This would be perfectly efficient if there were anything to be done with such great strength in early spring. Some springs are open enough that the larger colonies gain back what they used in winter.

### Feeding Dry Sugar Advocated

Instead of feeding sugar syrup when honey cannot be used, a beekeeper can feed dry sugar. The dry sugar is placed above the colony in a tray. There is no robbing, so that the bees feed upon it freely without waste. The interior of the hive is moist, which no doubt helps dissolve the crystals so they are not carried out.

Not having trays for the sugar, I have wrapped it in waxed paper and laid it on the hive floor. I dampened it, since I was not satisfied that none would be wasted. It is quite difficult to handle, as it runs when slightly dampened.

### A Container for Dampened Sugar

Most beekeepers at one time or another have tried to pour sugar syrup into combs. While the plan is sometimes advocated, experience has shown that it is a messy, wasteful job that is likely to encourage robbing. Only a small percent of the syrup expels the air from pockets in the cells of the comb, and considerable runs off the comb or drips out. When it runs out the entrance of the hive, robbing is invited.

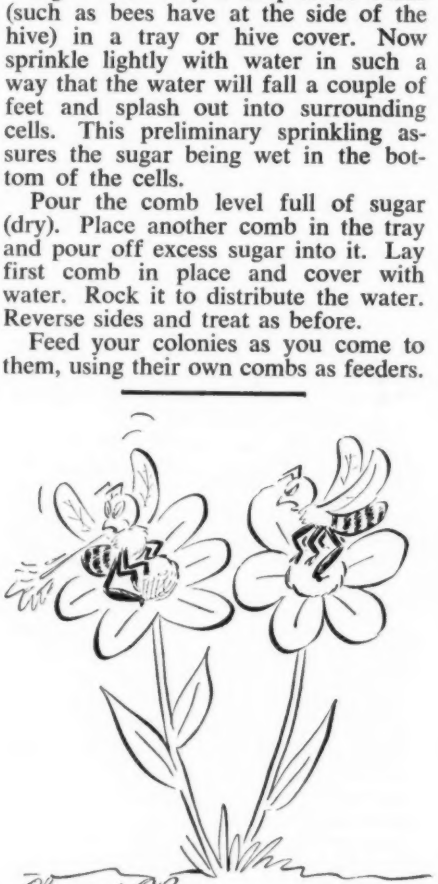
It occurred to me to pour dry sugar into combs, and dampen. The difficulty I contemplated was getting it dampened so it would not be quickly carried out but sipped instead, whenever a bee came upon it.

I soon learned that the cells quickly fill the sugar, but the water sprinkled on washes the piles down into empty cells. By holding the comb of sugar and water level and moving it in a wide rocking motion from side to side, the water will flow over the surface of the comb and wash any sugar into the cells. Since the sugar absorbs the water, there is not an excess to drip out onto the floor of the hive.

Experience, of course, is the best teacher. Here is the plan as far as I developed it: Have two or three sixties of water, and a pail. Have a sack of sugar or two and a dipper with one straight side. Lay a deep-celled comb (such as bees have at the side of the hive) in a tray or hive cover. Now sprinkle lightly with water in such a way that the water will fall a couple of feet and splash out into surrounding cells. This preliminary sprinkling assures the sugar being wet in the bottom of the cells.

Pour the comb level full of sugar (dry). Place another comb in the tray and pour off excess sugar into it. Lay first comb in place and cover with water. Rock it to distribute the water. Reverse sides and treat as before.

Feed your colonies as you come to them, using their own combs as feeders.



"What did you expect—egg in your nectar?"

## A Good Way to Stop Swarming

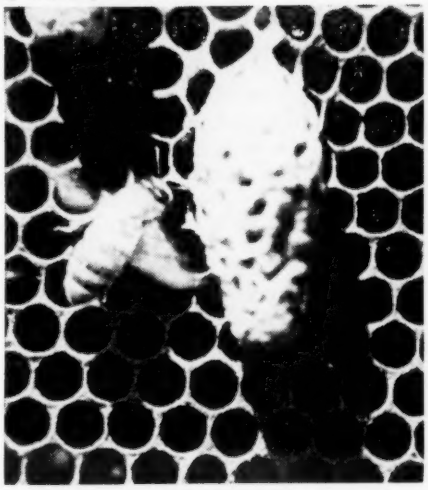
A. M. SOUTHWICK, Waban, Mass.

TO STOP swarming the best method varies with the locality, time of year, condition of the colony, and type of honey the colony is producing. We find the best method for extracted honey production in this locality to be as follows:

Give more room and larger entrances as or before they are needed, using no excluders and arranging the combs so that those occupied above the bottom chamber are on one side of the colony in a stack over each other while the empty combs are on the other side over each other forming a chimney.

Examine strong colonies every seven to ten days during the swarming season for queen cells. Pay no attention to new empty queen-cell cups. When there are only a few queen cells with only eggs or young larvae, cut them out, but when there are many advanced queen cells or any are sealed, put all combs with live advanced cells in a super over a double queen excluder with a rear upper entrance on the top of the colony and leave the old queen below. Continue periodic examination of the lower colony during the swarming season and add supers as needed. This will prevent swarming and often supply a young queen from the hive on top.

**If virgins are emerging when the hive is examined** take all combs with live queen cells and all combs well filled with brood and stores to form a new hive in a new location a few rods away leaving the old queen and/or one or more virgins with one brood comb and the partly filled combs at the old location. This division will prevent swarming.



Examine strong colonies every seven days for queen cells.

If because of overlooked queen cells or neglect, the colony swarms, move the parent colony to a new location a few rods away and place the hived swarm with one comb of brood where the old colony stood. This will prevent afterswarming.

If a prime swarm has already absconded at the time of examination and sealed queen cells are present, place the combs with sealed queen cells and all combs full of stores or brood over a double excluder with a rear upper entrance on top of the rest of the colony, leaving only one queen cell below with the partly filled frames, shaking the bees from combs above the excluders which have no queen cells, so they will run in the lower entrance.

## A Shallow Cover That Wont Blow Off

A. M. C. KIRKWOOD, Perthshire, Scotland

DURING THE LAST few years we have often been bothered by the wind blowing off the covers in our apiaries.

We prefer shallow covers for the sake of economy, and as these are especially liable to blow off, we now weight them with concrete, which is enclosed in the cover as follows: Before nailing on the galvanized-iron cover a wooden rim ⅜ x 1 inch is nailed round the top of the cover. The space on top is then filled with concrete and is left to harden. The galvanized-iron cover is nailed on later.

These covers are cheap and simple to make but it is important that not too much concrete is put in, as the weight then becomes excessive. Hives fitted with these covers will stand up to strong gales, even in exposed situations.



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# American Honey Institute News Notes

HARRIETT M. GRACE, Director

Commercial State Bank Building, Madison 3, Wisconsin

THE PREMIUM came, saw, and conquered the merchandising field. Its worth has been proved, it is here to stay. So let us take a quick look at it.

What do premiums have to offer honey merchants? Can a small beekeeper-retailer use them? What are the pitfalls of premium offers?

By premiums, of course, we mean offering to the customer something in addition to the product—a re-usable jar, for instance, or a drinking glass container.

Men well versed in the art of using premiums effectively offer these suggestions and warnings:

"A premium is only as good as the promotion behind it." says David Pickering, premium buyer for the Colgate Palmolive Company. He calls a premium a "wanted article of merchandise plus a promotion."

So it would be no go to purchase expensive glasses for a clever honey package, then expect the honey to sell itself. The fancy glass package must be accompanied by an extra spurt of promotion, of advertising that is designed to acquaint the potential customer with your premium offer.

Particularly well suited in this type of promotion is a good point-of-sale display. Proper posters and display cards can call attention on the spot to the premium you have to offer. They do not need to take up much extra display space and yet might be that extra little spark that will urge a homemaker into making a honey purchase.

Experts also point out the advantages of premiums that create the urge for continued buying by the customer. Coupons that offer merchandise that can be collected in sets often start the homemaker collecting that set and thereby buying additional units of honey. Silverware and drinking glass sets are items of this sort.

**Recipes have tremendous value in promoting sales** and may be regarded as a premium of a sort. If the recipe leaflet is glued on to the honey jar, you can be sure the homemaker will look at it when she gets home. And if she becomes a honey user, she'll be back to buy more of your honey.

A small merchandiser cannot take the risk of stocking merchandise to offer as a premium. The cost of the inventory is too high, the mailing costs per small number of units would be prohibitive. So the use of the recipe leaflet is the best premium that the small beekeeper can use.

He is able to order these leaflets ready-made from the American Honey Institute in relatively small numbers, he can send them out easily without need to hire additional help, and he can re-order them from the Institute at any time he desires. Also, recipe leaflets can be imprinted with his own name.

But if the beekeeper-retailer is a large enough dealer, he may want to try the use of other premium plans. He should bear in mind that those items offered as premiums should be **quality** merchandise. After all, it represents your product to the customer, and you don't want your product to gain the reputation of being manufacturered by a cheapskate outfit.

You should price the premium fairly, not too high, not too low.

You should be sure you can fill all of the orders you get very quickly.

If a homemaker goes to the trouble of ordering your premium, then she wants it right away.

Be sure you promote your premium and build up a desire for it in the customer's mind.

Whether or not you should embark on a premium plan is a matter for you only to decide. But once you have made up your mind, stick with your decision. And remember as you plan your promotions that the American Honey Institute is equipped with display posters and streamers that will be sent to you **at printing cost.**

For complete details just drop a card to the American Honey Institute, Madison 3, Wisconsin.

# Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

## HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 2.

WANTED—Buckwheat and some light amber honey. Eastern Food Products, 115 Division Ave., Brooklyn, New York.

## HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Company, Fredonia, N. Y.

BEST CASH Deal for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

BEESWAX WANTED. — Highest prices paid in cash or trade for bee supplies. The A. I. Root Co., Medina, Ohio, Council Bluffs, Iowa, San Antonio, Texas.

HONEY WANTED—Extra white, white, and light amber in 60's. Send sample and quote price. Cash paid. Clearbrook Honey Farms, Clearbrook, Minnesota.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

WANTED—Honey in 60's. Send sample and price. Lloyd E. Allen, Tipton, Mich.

WE ARE PAYING top prices on beeswax and honey shipped to one of our plants. Sioux Honey Assn., Lima, Ohio; Rogers, Texas; Anaheim, Calif.; Tacoma, Wash., and Sioux City, Iowa.

WANTED—Dark or strong flavored honeys for cash. Send price and quantity. R. Griggs, Hancock, Iowa.

WANTED—Light or amber honey, in barrels. Send price, quantity, and sample. Bert Lampson, 4 Columbus, Manatee, Fla.

## FOR SALE

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE — New heart cypress 10-frame bottom boards. K.D., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

COMB FOUNDATION PLANT OF THE EAST—that's WAX WORKERS, 1330 Slaterville Road, ITHACA, NEW YORK.

FOR SALE—8-frame Root equipment for 700-colony apiary. Write for details to E. H. Wadleigh, Monte Vista, Colo.

1300 new standard Kelley brood frames. A. Coderko, Hillsboro, Ills.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. Southwick Apiaries, Waban, Massachusetts.

FOR SALE—Bradshaw capping press in good condition. Old Taylor Honey Co., Harlan, Iowa.

MODERN extracting and bottling equipment—stainless steel and aluminum, except for extractor. H. F. Witman, 9 Waugh Ave., Glyndon, Md.

FOR SALE — Root 2-frame Simplicity extractor. Good condition, $125.00 Gilbert Smith, Wadena. Minn.



XUM

**HONEY WANTED**
Carloads and less than carloads. Mail sample and best prices in all grades.
**C. W. AEPPLER COMPANY**
Oconomowoc, Wisconsin

**QUEENS**
**Italians** **Caucasians**
Through September
Nice large queens .....60c each
Send us your order for 1 or 1000
**MITCHELL'S APIARIES**
Bunkie, La.

**HARPER'S FAMOUS**
High Quality Italian Queens
& Package Bees
1 to 9 ..75c ea. 10 & up ..65c ea.
by Air Mail
**CARLUS T. HARPER**
New Brockton, Ala.

**QUEENS ....$1.00**
3-banded Italians
**W. E. PLANT**
Hattiesburg, Miss.

Booking orders now. Over 30 years a shipper. Send for Free Circulars.
**BLUE BONNET APIARIES**
Weslaco, Texas

**The Yanke Strain — $1.00 each**
The Best Queens for Honey Production
22 Years of Breeding
**The Stricker Apiaries**
Annandale. N. J.

**HONEY LABELS**
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
**C. W. AEPPLER COMPANY**
Oconomowoc, Wisconsin

## BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

ITALIANS—Packages, Queens. Martz, Rt. 2, Box 846, Vacaville, California.

PACKAGE BEES, QUEENS: Prolific, gentle and disease free Italians. Parcel Post, express, or truck. Circular. Crenshaw County Apiaries, Rutledge, Ala.

CAUCASIANS, 2-lb. pkg., $3.00; 3-lb. pkg., $4.00. Untested queens, $1.00 each; 100, $75.00. Lewis & Tillery Bee Company, Greenville, Ala.

Three-banded Italian bees and queens. Our regular strain and the Dadant's Starline Hybrids. Untested queens, 1 to 25, $1.20; 25 to 100, $1.10; 100 up, $1.00 each. Package bees, 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. Packages shipped from No. Carolina. For Dadant's Starline Hybrids, add 30c per queen. Alamance Bee Company, Graham, No. Car., Phone 4703.

GOLDEN ITALIAN bees and queens. Very beautiful and very gentle. Untested queens, 1 to 25, $1.20; 25 to 100, $1.10; 100 up, $1.00. 2-lb. package with queen, $3.50; 3-lb. with queen, $4.50. For additional pound of bees, add $1.00 per lb. Carolina Bee Farm, Graham, N. C.

100 10-frame colonies, with excluder and shallow super. Excellent condition. $10.00 each. Osceola Honey Farms, Elizabeth City, N. C.

FOR SALE — 450 colonies, equipment partly made for 500. Large rockfaced cement block shop. Modern equipment. Locations. No disease. Truck, livable cabin. This is a very good going business in excellent condition. Substantial down payment. Wilburt A. Walker, Port Austin, Michigan.

NORTHERN ITALIAN QUEENS—Ready June 25th, $1.00 each; 10 up, 90 cents. Shirl Baker, Rodney, Michigan.

CAUCASIAN queens, $1.00 each. C. B. Eppling, Idlewilde, Covington, Virginia.

YOUR CHANCE to start in commercial queen rearing. 40 colonies, all necessary equipment. Over 300 nuc boxes. Floyd Johnson, High Bridge, N. J.

FOR SALE—500 colonies bees, also extra 10-frame bodies with comb. Inspection certificate furnished. Sell or lease. Ready for honey flow. John Tideswell, 2711 N. 63rd St., Omaha, Nebraska.

THREE-BAND Italian bees and queen, 3-lb. with queen, $4.50; 5-lb. $6.50. Bees postpaid. Queens, 85c. Luther Pickett, Efland, N. C.

FOR SALE—500 colonies. Equipment to run 1250 colonies. Lease or sell. Box 655, Gleanings, Medina, Ohio.

FOR SALE—Due to failing health will sell at a bargain, outfit of 700 10-frame colonies in good condition and young queens. Located in Frederick County, Md., one and one-half hours drive from largest apple orchards of eastern U. S. Price, including truck, moving screens, comb honey supers, orchard rentals for 700 colonies, $5800. Or will sell 500 colonies for $4000. No disease at last inspection. No triflers please. W. C. Long, Ladiesburg, Md.

100 colonies, single story, healthy, midwest. $6.00 each. Box W, Gleanings, Medina, Ohio.

CAUCASIANS—Very hardy, gentle, long lived, good workers, personally raised. Young laying queens, $1.00 each. Fred Brock, McDonald, Tenn.

## SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Iowa.

## MISCELLANEOUS WANTED

WANTED—Copper tank, tinned inside. 10, 20, or 30-gallon. What have you? Perfect in detail, no dents. Covered or open. State price, crated, C.O.D. John Whitefield, DeLancey, Jeff County, Pa.

## MISCELLANEOUS

Bargains in new or used honey cans or Root Supplies for cash or honey. Buckeye Honey Company, 3930 N. High St., Columbus 14, Ohio.

POLLEN PIES — Supplements lack of natural pollen. Hive fed. Used the country over. 75 cents pound. BURL-WICKS—Light and drop in smoker. Chemically treated. Harmless to bees. Convenient and long lasting. Season supply (6) $3.00. EASTON'S BEETERIA, Box 99, SIDNEY, NEW YORK.

## HELP WANTED

HELP WANTED — One more man in large bee business to begin in June. Experienced or inexperienced. M. E. Ballard, Roxbury, N. Y.

## SUPPLIES

NOW READY — Your copy of the BIGGEST MONEY SAVING CATALOG of Quality Bee Supplies at savings up to 25%. Prompt shipment—100% satisfaction guaranteed. WRITE TODAY! MONDENG MFG. CO., MINNEAPOLIS 5, MINN.

## MAGAZINES

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India, or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs1/8/, or s2/6, or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

ARCHIVE of BEE SCIENCE (Archive fur Bienenkunde), oldest scientific, independent bee journal in the world. Select feature material gives lasting theoretical and practical knowledge. Sample copies available. Two large 1953 editions for the low price of DM 5.50. Biene-Verlag (Bee Publishers), Lindau (B), Postcheck Karlsruhe 5581, Germany.

BEE WORLD, the international journal of the Bee Research Association, published monthly, contains the latest research reports on bees and beekeeping. With **Apicultural Abstracts** it cost $3.00 per annum. Apicultural Abstracts only $1.75 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.


**Here Are The Aids**

That Will Help
to
Control Bee Diseases
in
Your Apiary

FUMIDIL B for NOSEMA
6 gal. syrup size ..... $ 2.40
120 gal. syrup size ..... 28.50
SULPHATHIAZOLE for AFB
25 tablets ..... $ .60
500 tablets ..... 4.60
TERRAMYCIN (TM-5) for EFB
1 lb. ..... $1.25
10 lb. ..... 8.75

Get a Supply from Your Nearby Root Dealer or Send Your Order to

**The A. I. Root Co.**

Medina, Ohio — Council Bluffs, Iowa, — San Antonio, Texas

WILLIAMS' ITALIAN QUEENS
LARGE LEATHER COLORED
THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT
1 - 9 Postpaid, Airmail ..... $ .85
10 -99 " " ..... .80
100-up " " ..... .75
DR. WILLIAMS APIARIES
115 W. Sterling Ave. Baytown, Texas

**JOHN DAVIS QUEENS**

We ship until November 1 and fall is the right time to requeen. Order now and be sure. $1.00 each, any number.

**LITTLE'S APIARIES**
Shelbyville, Box 122, Tenn.

**J. E. WING & SONS**
42 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
**Knights Landing, Calif.**

TRY NATIVE HONEY—Printed on white 58M caps. Makes sales. $2.00 per 100 F.O.B. B. W. Richardson, 303 Lincoln St., Worcester 5. Mass.

**1955 QUEEN BEES**
**3-Banded Italians**
**1-9 ..... $1.10 each**
**10 or more ..... 1.00 each**
**Queens ready about April 5th.**
**Geo. W. Moore**
**Shasta, Shasta Co., California**

**Italian Queens**
**EUGENE WALKER**
**Rt. 2, Box 892**
**Live Oak, California**

**NORTHERN QUEENS**
Pure Leather Colored Acclimated Italian Stock
**Untested, 1-24 ..... $1.00**
**24-up ..... .75**
**Select tested in large cages 2.00**
Service and Satisfaction
**BARGER APIARIES Carey, Ohio**

**THE AUSTRALASIAN BEEKEEPER**
The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd., Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M. O. 18/-(approx. $2.15) per year, post free. Sample copy free on request.

## HISTORY OF BEEKEEPING

(Continued from page 349)

the Honeybee". This is considered to be the best book on the anatomy of the Honeybee.

The A. I. Root Company announced their Simplicity radial extractor, which held 45 combs.

**Virgil N. Argo** studied the life cycle of **Braula coeca.** The larvae of the parasite burrow on the under side of the cappings while the adults stay mostly on the back of the queen or workers and feed on nectar of honey which they extract from the mouth parts of the host.

First plantings of honey plants made in Pellett's honey plant test garden by **Frank C. Pellett,** the late Field Editor of the "American Bee Journal".

(to be continued)

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $1.00. Hotel Cactus, San Angelo, Tex.

**TWIST BEE SUPERS**
**Standard Dove Tail**
**New No. 1 Grade .....$1.10**
**New No. 2 Grade ..... .75**
**S. E. TWIST**
201 Alpha St.,
SAN FRANCISCO 24, CALIF.

**Package Bees & Queens**
**Quality & Service**
**C. F. KOEHNEN & SONS**
**Glenn, California**

### Answers to "How Many Can You Identify" on page 351

1. **Harvey B. Lovell,** Professor of Biology at the University of Louisville, Ky. One of the greatest living authorities on honey plants. Author of "Lets Talk about Honey Plants" that appears monthly in Gleanings. Son of the late John H. Lovell who wrote "Honey Plants of North America".

Left to right. 2. **W. A. Stephen,** Ext. Apiarist for North Carolina. Sec.-treas. of the Southern States Beekeepers' Federation. 3. **G. J. Abrams.** Apiculturist at the University of Maryland. Host to the coming hobby beekeepers' meeting to be held on the Maryland campus June 17, 18, and 19.

4. **Seymour Bailey,** Chief Apiary Inspector of Ohio. 5. **Carl Killion,** Chief Apiary Inspector of Illinois. 6. **F. B. Paddock,** Chief Apiary Inspector of Iowa. Also president of the Apiary Inspectors of America. 7. **Don P. Barrett,** Chief Apiary Inspector of Michigan.

8. **H. R. Swisher,** president of the Ohio Beekeepers' Association. 9. **C. J. Burgin,** Chief Apiary Inspector of Texas. 10. **John W. Buchanan,** Bee Supply Sales Manager for The A. I. Root Co., John has submitted many cover pictures for Gleanings. Has been with The Root Company for 27 years.

11. **Dr. J. W. White,** noted honey authority and chemist from the U.S. Dept. of Agriculture Research Laboratory at Philadelphia, Pa. 12. **A. V. Dowling,** noted Georgia chunk honey producer and a leader in southern affairs. 13. **Roland Stone,** Secretary of the National Honey Dealers' and Packers' Association. Co-Owner of the Superior Honey Company. 14. **Roy R. Reed,** Commercial beekeeper and one of the leaders in California affairs.

## LIVE AND LEARN

(Continued on page 355)

soon as they had grown a bit. I told him that we were just eating dinner, and asked could he wait a few minutes. No, he was in a hurry. So, what the heck—anything to advance the art of beekeeping—I put on a jacket (it was cold and raining) and took him out to the bee yard. He wanted to know the cost of everything he saw. Time went on. My dinner got colder and colder. Finally he decided that he would buy a colony, and that is when I flipped. I don't think that I told you that he spoke with an accent so thick that you had to saw it. You couldn't cut it with a knife. I quoted him a price of $25 for a one-story colony with all new equipment, but with ten good worker combs drawn last year. He says, "I take it. I gif you zwelf tollers and my old hive that the bees died in."

It was Sunday, and perhaps my language sounded as though I were praying, but believe me brother I wasn't. I spoke feelingly for ten minutes without repeating myself. I used words that I never used before. The last I saw of him, as I turned to come back to the house, he was standing with his mouth open, wondering what was the matter with me.


**CAUCASIAN or ITALIAN**
**Package Bees and Queens**

Bees gentle to work with, less swarming, good producers, health certificate, and live arrival guaranteed are just a few things you get when your requirements are sent to me.

PRICES ARE:

| Quantity | 1-25 | 25-50 | 50-100 |
|---|---|---|---|
| 2-lb. pkg. w/q | $3.00 | $2.90 | $2.85 |
| 3-lb. pkg. w/q | 3.90 | 3.80 | 3.75 |
| 4-lb. pkg. w/q | 4.85 | 4.75 | 4.65 |
| 5-lb. pkg. w/q | 5.80 | 5.70 | 5.50 |
| Queens | 1.00 | .90 | .80 |

**FARRIS HOMAN**
**Shannon, Miss.**

**Howard Weaver's**

**PERSONALLY REARED**

**CAUCASIAN QUEENS**

1 to 9 ..... $1.00
10 and up .. .90

**Howard Weaver**

**Navasota, Texas**

**QUEENS — ITALIANS — QUEENS**
We offer you young laying queens, shipped prepaid Air Mail. Clipped and painted on request.
**75c each any number**
**Tested Queens .....$1.50 each**
QUALITY DOES NOT COST — IT PAYS
**THE WILBANKS APIARIES Claxton, Georgia**

**YORK'S QUALITY BRED QUEENS**
Your Choice of Two Outstanding Strains
DADANT'S Improved Starlines or
YORK'S Quality Bred Italians

| Italians | | Starlines | |
|---|---|---|---|
| 1-24 ..... | $1.10 | 1-24 ..... | $1.40 |
| 25-99 ..... | 1.05 | 25-99 ..... | 1.30 |
| 100-up ..... | 1.00 | 100-up ..... | 1.20 |

Reg. U.S. Pat. Off.

**The Preference of Leading Honey Producers**

**YORK BEE COMPANY Jesup, Georgia**
**(The Universal Apiaries)**




B & Z LIBRARY

## SUMMER PRICES

First Quality Italian Bees and Queens

**Prices for rest of season:**

**2-lb. packages with queens .....$2.50 any number**

**3-lb. packages with queens ..... 3.00 any number**

**Untested queens ..... .60 any number**

**Tested queens ..... 1.00 any number**

Bees F.O.B. Queens mailed and clipped on request. All Merrill's bees and queens are backed with our 100% satisfaction.

**MERRILL BEE COMPANY**

**Box 115 State Line, Miss.**

**JENSEN REARED QUEENS**

**Are Superlative!**

Tops in Quality and Performance. Attested to by many of our customers in testimonial letters, and repeat orders, the like of which we have never before seen. There just is no substitute for QUALITY. There is a vast difference in queens and don't forget it.

With the bulk of package shipping now over, we will concentrate on fast queen deliveries. This year's Dadant "Starline" 4-way Hybrids surpass all other Hybrids we have produced. This also portends to be our greatest year in point of Quantity as well as Quality in our 40 years of commercial queen rearing. Either "Starline Hybrids" or "Magnolia State" Italians will deliver the goods, and afford you genuine pleasure in ownership.

Reg. U.S. Pat. Off.

**Prices for remainder of season:**

| | Dadant "Starline" Hybrids | "Magnolia State" Italians |
|---|---|---|
| 1-24 | $1.35 | $1.10 |
| 25-99 | 1.25 | 1.00 |
| 100-up | 1.15 | .90 |

**JENSEN'S APIARIES "The business QUALITY built" Macon, Miss., U.S.A.**

**THE NEW DON-LO LOADER FOR 1955**

**Save Your Back — Save Labor**

Easy to use

Easy to install

Low in price:

**Only $525 to $585**

for standard units

Boom lengths 10-20 feet

Write for further information and circular.

**RONLAKE'S MACHINE SHOP**

**P. O. BOX 767 REDDING, CALIFORNIA**

**YOUNG ITALIAN QUEENS**

Delivered to you Air Mail.

**Price 70c each.**

**GASPARD BEE CO. Hessmer, La.**

**Good Italian Queens**

**In season**

**White Pine Bee Farms**

**Rockton, Pa.**

**MOUNTAIN GRAY CAUCASIANS**

Personally raised. Gentle, good workers; winter well. Queens $1.00 each.

**ELBERT S. CHILDS**

**201 Garden Ave. Knoxville 18, Tenn.**


## SWARM PREVENTION

(Continued from page 336)

modern methods and equipment, removes the honey and saves the bees and combs to use again, and discourages swarming to the point that is practically eliminated, and larger yields of honey per colony are harvested.

If the colony that has cast a swarm is very large, it may cast one or more "afterswarms", each containing a virgin queen. The parent colony will then be weakened to such an extent that it may not be able to recuperate fast enough to gather any surplus.

## BEEKEEPING IN NEW JERSEY

(Continued on page 341)

or move to the more rural section. It is not unusual to find a suburban beekeeper traveling 40 or more miles on week ends to care for his bees.

The bees being located on some farms furnish pollination for the area, plus a certain amount of honey given to the farmer each year for rent, which in turn develops a future market for honey.

The **submarginal area** is a wonderful location for bees to gather early pollen from the plentiful maples, but very little surplus honey is produced.

The acreage in blueberries and cranberries is large. Very few colonies are found in these areas as airplanes are employed for dusting with various chemicals in controlling pests.

To succeed with bees in New Jersey, one should acquaint himself with the flora that exists in the radius of two miles of his colonies. This includes nectar-secreting plants that furnish pollen in abundance.


**Those Good Dark**
**ITALIAN QUEENS**
1 to 25 .....$1.00 each
25 and up ..... .90 each
**WEAVER APIARIES**
Navasota, Texas

**OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE**
Keep up on markets, practices, scientific data, regulations and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50c a year extra
**AMERICAN BEE JOURNAL**
Hamilton, Illinois

**"The Australian Bee Journal"**
Published by the Victorian Apiarists' Association at the beginning of each month.
Subscription 10/-per annum plus 2/6 postage to oversea countries.
**Address 112 Whitehorse Rd.**
**Ringwood, Victoria, Australia**

**The Picture Bee Magazine**
If you are taking time to read, why not read the best? Condensed to save you time. Illustrated to give you pleasure.
**Modern Beekeeping**
Clarkson, Kentucky

**We Regret the Delay . . . .**
. . . in delivering some orders.

Please accept our word that it was because of unseasonable weather. Conditions were good at the time of the freeze on March 27th when all possible source of pollen and nectar was killed and at this date May 6th we have seen our first new nectar of any consequence.

This condition seems general and we could not secure bees from other shippers or honey producers.

Queens are now available. Write for particulars and prices.

**Rossman Apiaries**
**P.O. Box 133 Moultrie, Ga.**

**Italian Queens**
65c each
Air Mail
and
Guaranteed to Please
**O. K. Anderson & Son**
**Box 193**
**Coffee Springs, Ala.**
**Phone: 466 R5**

**3-BANDED**
**ITALIAN QUEENS**
1-24 .....$ .80 Prepaid Mail
25-99 ..... .75 Prepaid Mail
100 up ..... .70 Prepaid Mail
Add 5 cents per Queen for Air Mail
Health Certificate and Guaranteed Safe Arrival
**H. C. BRUNSON**
**P.O. Box 188 Phone 2161**
**Hampton, S. Carolina**

**CAUCASIAN & CARNIOLANS**

Requeen your increase with either of these — gentlest, have longest tongue of any race of bees, and build up rapidly with white comb.

Untested queens .....$1.20
Foreign price, by air mail ..... 1.50
Mail orders to Tenn. address after May 25th.

**W. D. REAMS**
R 5 Morristown, Tenn.

**FLOWERS' QUALITY ITALIANS**

That will stand the test for honey gatherers; gentle; prolific; queens bred from hives making 300 pounds honey; guaranteed mated and laying; health certificate; full weight; prompt shipment; live delivery guaranteed. Ship by express, truck, or Parcel Post. Include postage for parcel post shipments.

**Packages with Young Laying Queens**

(Any amount of Packages)

| 2-lb. pkg. | 3-lb. pkg. | 4-lb. pkg. |
|---|---|---|
| $2.75 | $3.25 | $4.00 |

**Tested queens, $1.50 any amount**

**Queens, Airmail**

| 1-24 | 25-100 | 101-up |
|---|---|---|
| 75c | 75c | 65c |

OUR QUEEN OUTPUT IS DOUBLE FROM LAST YEAR SO IF YOU WANT THEM AT ONCE. SEND US YOUR ORDERS.

For further information, write us.

**FLOWERS BEE COMPANY**
Jesup, Ga. U. S. A.

**ITALIAN**
**Package Bees and Queens**
**Jackson Apiaries**
**Box 58 Funston, Ga.**


## THE QUEEN EXCLUDER

(Continued from page 343)

### Care of Excluders

PERHAPS NO PIECE of beekeeping equipment is more delicate than the excluder. It requires special handling at all times. Storage and transportation often ruin them. I have seen many ruined by the method in which they were removed from the hive. To remove it without injury pry the rim loose on all sides then give it a horizontal twist. This will break the burr comb in the center of the hive and it can then be lifted up easily. Remember it is made to exclude the queen and if sprung it will not do so.

The rim of the wire and wood excluder should be painted to prevent rotting. The wire part can be painted with a good grade of aluminum paint to prevent rusting; it will also prevent the bees from attaching burr comb and propolis to a large extent. Paint is not objectionable to the bees. If proper care is given the excluder it will give many years of satisfactory service.

### Cleaning the Excluder

This has been a problem to many beekeepers. Some boil while others scrape. Any way you do it, it certainly is a job to be dreaded. Unless they are cleaned when they become partially clogged then they are sure to be more bothersome to the bees when placed on the hives.

The best way I have found to clean them is to lay them on a table or work bench, take a wire brush and stroke them parellel with the wires, reverse and do the same on the other side. It requires some pressure on the brush and if too much pressure is applied there is danger of springing them. To prevent this a board three-eighths inch thick can be placed underneath which will fit inside the wood rim, fasten this to a table or bench which will hold the excluder while being cleaned.


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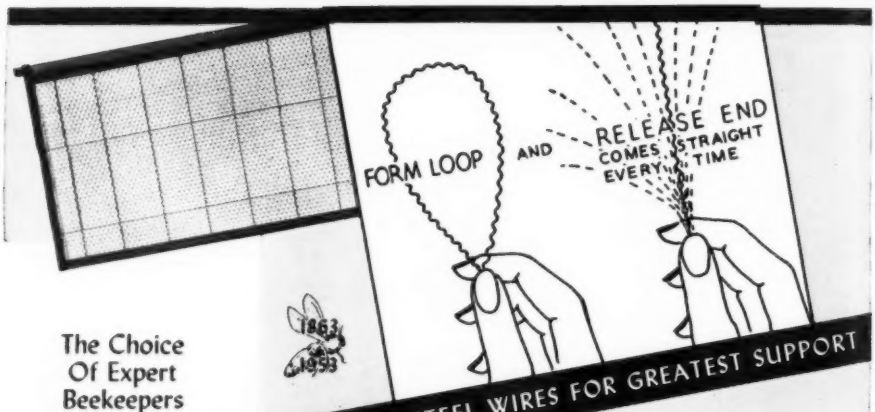


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- All cells just alike
- Every sheet the same
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Special wire is made for Dadant's foundation, and after crimping has a spring so it will not stay bent.
This special wire exerts a constant protection to keep the Pure Beeswax sheet in flat center plane at all times.
With Dadant's Crimp-Wired Foundation there is less breakage of the comb under load due to the special wire—it resists the down pull—resists heat and cold and the stresses of moving the hive.
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